

The Effect of Educational Video-Based Multimedia toward Students' English Vocabulary Mastery on 7th Grade Students at SMPN 52 North Bengkulu

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Abstract. This study aims to examine the effect of using educational video-based multimedia on the English vocabulary mastery of seventh-grade students at SMPN 52 North Bengkulu in the 2024/2025 academic year. This research uses a quantitative approach with a quasi-experimental design. The sample consisted of two classes: the experimental class received instruction using educational videos, while the control class was taught using traditional methods without multimedia support. Prior to the treatment, both groups were given a pre-test to measure their initial vocabulary ability. After the intervention, a post-test was conducted to assess the students' vocabulary improvement. The data analysis revealed a significant increase in the post-test scores of the experimental group compared to the control group. This indicates that the use of video-based multimedia effectively enhances students' vocabulary comprehension and retention. Additionally, video media improved students' learning motivation and engagement during the instructional process. These findings recommend the integration of multimedia as an innovative strategy in English language teaching, particularly in vocabulary instruction, to create a more engaging, interactive, and contextual learning experience.

Keywords: Educational Video, Multimedia, Vocabulary Mastery.

1. INTRODUCTION

The educational landscape has changed significantly in the era of rapid technological advancement. Today, the main focus is the use of multimedia tools to improve student learning outcomes (Hutasuhut & Harahap, 2024). This change has greatly impacted the field of language education, especially the teaching and learning of English, which is a very important language in global communication. Especially on improving students vocabulary mastery: Some research indicates that students exposed to video-based learning demonstrates higher vocabulary retention compared to traditional methods. For instance, a study found a significant difference in vocabulary mastery between groups using audiovisual media and those that did not use it, with a t-count of 2.778, indicating strong effectiveness (Jember, 2022). This ability is critical for academic success and everyday interactions in the English language.

Although incorporating video-based multimedia learning into the classroom has many benefits, its implementation is still lacking in some schools. SMPN 52 North Bengkulu, as the research site, represents these challenges as it is located in a rural area where traditional teaching methods still dominate classroom practices and media are rarely used. Effective training programs are essential for teachers to feel comfortable and competent in using technology, which directly impacts student learning outcomes (Aguiar, 2018). The choice of SMPN 52 North Bengkulu reflects the need for innovative teaching approaches to improve students' vocabulary mastery and demonstrates the potential of video-based multimedia to transform traditional learning methods.

Many schools still use the traditional text-based approach to teaching vocabulary, although more and more people are recognizing the importance of multimedia in education. Aqila said that Studies show that students respond positively to multimedia tools, finding them more engaging than traditional methods (Nuzulia, 2019). This method often relies on memorization, which can lead to students learning passively and becoming disengaged. It is clear that a more dynamic and interactive educational approach is needed for English language teaching at SMPN 52 North Bengkulu. Digital learners, according to Oblinger, are more comfortable with an environment full of images rather than text. A situation where a student in a class realizes that he does not understand his teacher's lecture and even the PowerPoint slides do not provide new information. In everyday life, students are digital natives who are accuctomed to visual and interactive content. However, the classroom environment does not always accommodate this. As a result, students may have difficulty staying motivated or truly engaging with the lesson (Yuliana, 2022).

Ganihanova said that Multimedia encompasses multiple formats such as text, graphics, animation, and sound, creating a rich environment for information presentation (Barbosa, 2018). Filmstrips, audio-tapes, videos, models, and others are examples of media. Video-based multimedia is one of the innovative approaches that is gaining popularity in various educational environments. A more engaging and comprehensive learning experience is created through the combination of visual, auditory, and sometimes kinesthetic elements. By utilizing videos as contextual language input, students can see and hear vocabulary used in real-life situations, helping them remember and understand it better. Video content can also appeal to different learning styles, making it a useful tool for teaching different groups of students. In this study, YouTube is used as the platform for delivering video-based content. YouTube provides a wide variety of accessible, real-life context videos that are rich in vocabulary usage, enabling students to learn vocabulary in meaningful and engaging ways. This platform allows students to see and hear vocabulary used in everyday situations, enhancing their ability to understand and retain new words. The use of YouTube videos for teaching English vocabulary in this study aims to make the learning process more engaging and interactive by leveraging students' familiarity with digital tools and their natural inclination toward multimedia content. The use of video-based multimedia to teach English language students, especially secondary school

students, such as students at SMPN 52 Bengkulu Utara, can make vocabulary learning can make vocabulary learning more understandable, engaging, and effective. Over the past ten years, many studies have shown a strong relationship between vocabulary knowledge and comprehension (Aziz, 2021). Therefore, children who join school with low levels of vocabulary knowledge are likely to have a relatively small vocabulary and are likely to have difficulty comprehending texts in school (Wright & Cervetti, 2016).

The initial observations conducted on August 20, 2024 at SMPN 52 revealed several problems related to students' English learning. Many students had difficulty understanding English lessons due to a lack of vocabulary, further worsened by their low motivation to learn the language. They showed little desire to engage with the English language inside and outside the classroom alike. Furthermore, the teaching of English at SMPN 52 seldom incorporates video-based media or other technologies that can enhance students' comprehension and expand their vocabulary.

Educational video-based multimedia offers significant advantages in teaching English vocabulary. By combining visual, auditory, and contextual elements, it helps students understand and retain vocabulary more effectively than to traditional methods (Shadiev, 2020). Videos present words in real-life contexts, enhancing comprehension and practical application while accommodating various learning styles. Additionally, video-based learning increases student engagement and motivation, making the learning process more interactive and enjoyable, especially for digital native. This approach not only improves vocabulary mastery but also aligns with modern technological advancements in education. According to Qamariah in a journal titled *English Vocabulary Introduction using Video Media to Grade 2 Children at Budi Mulia Elementary School*, research indicates that students exposed to video media demonstrate improved retention of vocabulary than traditional methods (Qamariah et al., 2023). Based on the scores obtained by students, it can be seen that learning videos can improve students' ability to build vocabulary among deaf students. This increase is because learning videos are one of the most effective media for students for building vocabulary (Sinjai, 2023).

Based on the explanation above, this research aims to find out how video-based multimedia teaching impacts students' understanding of English vocabulary at SMPN 52 Bengkulu Utara. The purpose of this study is to determine whether the use of videos in the classroom can improve students' vocabulary learning than traditional methods. In addition, this study also examines how the video-based multimedia approach can improve students' motivation, engagement and overall language proficiency. This research contributes to the

broader discussion on the role of technology in contemporary education and its potential to transform language teaching in Indonesia by analyzing the outcomes of video-based teaching.

2. METHOD

Research Design

This study employed a quantitative method based on Creswell's (2022) definition, which states that quantitative research is used to objectively test theories by examining relationships among variables and analyzing numerical data using statistical procedures. The research applied a quasi-experimental design with a pretest-posttest control group approach to evaluate the effect of video-based multimedia on seventh-grade students' English vocabulary mastery at SMPN 52 North Bengkulu. The participants were divided into two groups: the experimental group received instruction using video-based multimedia, while the control group was taught through traditional methods. Both groups took a pretest and posttest, and the results were analyzed using descriptive statistics and an independent t-test to assess the effectiveness of the treatment. Additionally, a pre-test and post-test was administered to the experimental group to gather feedback on student engagement and motivation during the use of multimedia in the learning process.

Population and sample

The population in this research consisted of all seventh-grade students at SMPN 52 North Bengkulu during the 2024/2025 academic year, totaling 60 students divided into two classes: 7A and 7B. To select the sample, the researcher used purposive sampling, considering input from the English teacher regarding the students' language proficiency. Based on this, class 7A was designated as the experimental group, and class 7B as the control group, each consisting of 30 students. Both groups were considered to have relatively equal English ability, ensuring a fair comparison in measuring the impact of video-based multimedia on vocabulary mastery.

Instrumentations

The instrument used in this study was a vocabulary test designed to measure the effectiveness of educational video-based multimedia on students' vocabulary mastery. The test consisted of multiple-choice questions and was administered as both a pre-test and a post-test to the experimental and control groups. Before implementation, the test items were evaluated for validity and reliability to ensure they met proper research standards.

a. Validity

To ensure the accuracy of the instrument, the researcher conducted both content and expert validity checks. A total of 60 multiple-choice vocabulary questions were developed and tried out on 21 students from a school with similar characteristics to the research site. The items were then analyzed, resulting in 28 questions meeting the validity criteria. These items reflected key indicators such as word meaning in context, grammar usage, and daily vocabulary relevance, ensuring the instrument appropriately measured students' vocabulary mastery.

b. Reliability

According to Kouam Arthur William, reliability is related to the consistency and stability of result (Kouam & William, 2024). To ensure consistency of the instrument, a reliability test was conducted using Cronbach's Alpha. After initial validation, the test items were tried out on students from a comparable school. The result showed a Cronbach's Alpha value of 0.897, indicating a high level of reliability. This confirms that the vocabulary test was stable and consistent for use in both pre-test and post-test phases of the study.

Technique of Data Collection

Data were collected through tests and documentation. A vocabulary test consisting of multiple-choice questions was used as both pre-test and post-test to assess students' vocabulary mastery before and after the treatment. The experimental group received instruction through educational video-based multimedia, while the control group was taught using traditional methods. Documentation such as student attendance lists, test scores, and classroom photos supported the data collection process.

Technique of Data Analysis

The data analysis in this study involved several steps. First, the validity and reliability of the vocabulary test were measured to ensure the quality of the instrument. The test items were evaluated for content validity and expert judgment, and reliability was assessed using Cronbach's Alpha. Difficulty level and item discrimination analysis were also conducted to determine the appropriateness and distinguishing power of the test items. Before comparing results, normality and homogeneity tests were performed to verify data distribution. The main statistical analysis used was the independent sample t-test to compare pre-test and post-test The Effect of Educational Video-Based Multimedia toward Students' English Vocabulary Mastery on 7th Grade Students at SMPN 52 North Bengkulu

results between the experimental and control groups. In addition, the effect size was calculated to measure the magnitude of the treatment's impact on students' vocabulary mastery.

3. FINDINGS AND DISCUSSION

Analysis of the data

A. Normality Test

Tests of Normality (Experiment)								
	Kolmog	gorov-Smit	rnov ^a	Shapiro-Wilk				
	Statistic Df Sig. Statistic Df							
Pre-Test Eksperiment	.104	30	$.200^{*}$.956	30	.237		
Post-Test	.153	30	.072	.964	30	.382		
Eksperiment								
*. This is a lower bound of the true significance.								
a. Lilliefors Significance Correction								

Table 1

Based on the table above, the significance in the Lilliefors table are shown, so the data is significant. Based on the table, it is known that the significance of the posttest experimental class data are 0.382 posttest, while the significance of the pretest experimental class data is 0.237. The significance of the posttest experimental class and pretest experimental class are much smaller compared to the Lilliefors table calculations. So, it can be concluded that the posttest results in the experimental class and pretest experimental class were normally distributed.

Tests of Normality (Control)									
	Kolmo	ogorov-Smi	rnov ^a	Shapiro-Wilk					
	Statistic	Df	Sig.	Statistic	Df	Sig.			
Pre-Test Kontrol	.151	30	.078	.931	30	.053			
Post-Test Kontrol	.162	30	.044	.932	30	.056			
a Lilliefors Significance Correction									

Table 2

Based on the table above, the significance in the Lilliefors table are shown, so the data is significant. Based on the table, it sknown that the significance of the control class data at posttest is 0.056, while the significance of the pretest control class data are 0.053. The significance of the posttest experimental class and pretest experimental class are much smaller compared to the Lilliefors table calculations So, it can be concluded that the posttest results in the control class and pretest control class are normally distributed.

B. The Homogeneity Test

After the researchers calculated the normality of the data, then the researchers calculated the homogeneity which was calculated using the SPSS 28 program. The results of the homogeneity test will be explained in the table below:

Test of Homogeneity of Variances								
		Levene	Levene df1		Sig.			
		Statistic						
Pre-	Based on Mean	3.737	1	58	.058			
Test	Based on Median	2.923	1	58	.093			
	Based on Median and	2.923	1	47.552	.094			
	with adjusted df							
	Based on trimmed mean	3.729	1	58	.058			
Post-	Based on Mean	1.237	1	58	.271			
Test	Based on Median	1.135	1	58	.291			
	Based on Median and	1.135	1	46.462	.292			
	with adjusted df							
	Based on trimmed mean	1.228	1	58	.272			

Table 3

The results of the homogeneity test with the Levene declared homogeneous if the significance is >0.05. Based on the test results, it can be concluded that the variance of the pre-test scores and post-test scores in the experimental and control classes is homogeneous (the same). This is indicated by the significance value of 0.058 and 0.271, because the significance value is greater than 0.05, the data is declared homogeneous.

C. T-test

After the data from the experimental and control classes were declared normal and homogeneous, statistical analysis was carried out using the t-test with SPSS to compare the post-test learning outcomes of the two classes after the learning treatment. The T-test is effective, but its accuracy can be affected by non-normal data or mismatched samples (Novak, 2020). The results of the T-test will be explained in the table below: The Effect of Educational Video-Based Multimedia toward Students' English Vocabulary Mastery on 7th Grade Students at SMPN 52 North Bengkulu

Table 4

Independent Samples Test										
Levene's Test for Equality of Variances			t-test for Equality of Means							
						Sig. (2-	Mean	Std. Error	95% Cor Interva Differ	nfidence I of the rence
		F	Sig.	Т	Df	tailed)	Difference	Difference	Lower	Upper
Nilai Post- Test	Equal variances assumed	1.237	.271	15.299	58	.000	26.400	1.726	22.946	29.854
	Equal variances not assumed			15.299	53.211	.000	26.400	1.726	22.939	29.861

The post-test results for both the experimental class and the control class were carried out after the treatment was carried out. Based on the data in table 4.6, it can be seen that there is a significant difference between the experimental class (M=74.73 and SD=7.620) and the control class (M=48.33 and SD=5.591).

Then the researchers compared the t values and tables to find out whether the Educational Video-Based Multimedia in teaching comprehension was effective in increasing students' understanding or not. After calculating the data in table 4.6, the tcount value was 15.299 with Sig. (2-tailed) 0.00, and ttable of 0.05 (5%) because the significance level is 1,296 with a df of 58 degrees of freedom (df). It is known that tcount=4.170 ttable 1,296 and sign (2-tailed) 0.00<0.005. This means that the Educational Video-based Multimedia is effective in students' english vocabulary mastery.

D. F-test

The F test (ANCOVA) was conducted to determine the significant effect of several factors on students' abilities individually or together. The F test, named by George W. Snedecor in honor of Sir Ronald Fisher, is used to compare variances between groups (Odek & Opuodho, 2023). This test is important to ensure that the treatment in the study has a real impact on students' vocabulary mastery. If the results are significant, the treatment is considered successful. The complete results of the F test can be seen in the following table:

Tests of Between-Subjects Effects										
Dependent Variable: nilai posttest										
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared				
Corrected Model	10454.400 ^a	1	10454.400	234.066	.000	.801				
Intercept	227181.067	1	227181.067	5086.405	.000	.989				
Kelas	10454.400	1	10454.400	234.066	.000	.801				
Error	2590.533	58	44.664							
Total	240226.000	60								
Corrected Total	13044.933	59								

Table 5

From the results of the f test, it can be seen that the significant value for the effect of Educational Video-based Multimedia in Students' English Vocabulary Mastery(Class Experiment) f count 234.066 from f table 4.00, it proves that H_0 is rejected and H_I is accepted, meaning that there is a significant effect Educational Video-based Multimedia in Students' English Vocabulary Mastery. So if you compare the experimental class with the control class using Educational Video-Based Multimedia it has an effect of 80,1% based on the partial eta squared table.

4. **DISCUSSION**

Based on data analysis on class VII students at SMPN 52 North Bengkulu, there is a significant influence on the mastery of understanding of students who are taught using Educational Video-based Multimedia. The test data results are divided into pre-test and post-test. Students who were taught using Educational Video-based Multimedia had higher scores than students who were taught without Educational Video-based Multimedia. In analyzing the data, the researcher analyzed the pre-test and post-test hypotheses for both the experimental class and the control class to find out whether the use of Educational Video-based Multimedia was significant for students' English Vocabulary Mastery or not. Researchers analyzed by carrying out at test using SPSS with a significance level of 5% (0.05), so the criteria were a pot t value of 15.299 and a table of 1,296 signs. (2-tailed) is 0.000<0.005. The calculation means that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. it can be concluded that there is a significant difference in students' vocabulary mastery by using Educational Video-based Multimedia in the learning process.

Based on the explanation above, the researcher concludes that the use of Educational Video-based Multimedia has a significant influence on students' English Vocabulary Mastery, especially for students at SMPN 52 North Bengkulu.

After calculating the normality test using SPSS, it can be proven that the pre-test and post-test data for the experimental and control classes are both normally distributed. It can be stated that the experimental and control class data is much less than the Lilliefors table calculations where the critical point is 30. The results of the pre-test data for the experimental class are 0.104. while the data for the control class are 0,151 and the results of the post-test data for the experimental class are 0.153. while the data for the control class 0.162. It can be concluded that all the data used in this research are normal.

Furthermore, based on the results of the data homogeneity test, the experimental class and control class became homogeneous data groups. This can be seen from the results of the pre test significance of the control and experimental classes being greater than the significance value of 0.005 and the results of the post test significance of the control and experimental classes being 0.271 which is higher than the significance value of 0.005. Significant value 0.005. Therefore, the data group is proven to fall into the homogeneous data category.

5. CONCLUSION AND SUGGESTION

After experimenting with teaching English Vocabulary Mastery by using Educational Video-based Multimedia in the experimental class and without using Educational Video-based Multimedia in control class, the researcher got the data in the experimental class are the lowest score is 57 and the higher score is 90. Meanwhile, in control class are the lowest score is 39 and the higher score is.57. Then, the researcher continues to has been calculated the data, so the researcher concluded the data is a significant difference of students vocabulary mastery is the experiment and control class. Then, the result showed that the gain score of the experimental class which given Educational Video-based Multimedia as a treatment and without treatment in control class. Statistical analysis using SPSS 28 shows an F test value of 234.066 with a sig.0.000 value. It can be concluded that the effect is 0.000 so it is said to be effective for increasing vocabulary mastery.

It can be concluded from the data about so using Educational Video-based Multimedia in the learning process in the classroom has a significant effect on the students vocabulary mastery.

As for the suggestions, For teachers, it is recommended to integrate educational videobased multimedia into vocabulary learning to enhance student engagement and understanding, ensuring content matches students' levels. For researchers, exploring various types of multimedia and applying them to different language skills or grade levels can offer broader insights. For future researchers, examining the long-term effects and involving diverse participant groups is encouraged to assess the overall effectiveness of multimedia in language learning.

REFERENCES

- Article, J., Barbosa, G., & Aguiar, A. R. (2018). Education quarterly reviews. https://doi.org/10.31014/AIOR.1993.01.01.14
- Comprehension, R. (2021). The correlation between vocabulary achievement and reading comprehension. Journal of English Language Studies, 4(1), 546–562.
- Hutasuhut, I. F., & Harahap, H. D. (2024). Vocabulary learning strategies among EFL learners: A study in Indonesian secondary schools. Edumaniora: Jurnal Pendidikan dan Humaniora, 3(1), 14–20.
- Jember, U. (2022). Pendahuluan Undang-undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. Jurnal Pendidikan Nasional, 2(1), 94–103.
- Kouam, F., & William, A. (2024). Mastering validity and reliability in academic research: Meaning and significance. International Journal of Research Publications, 144(1), 287– 292.
- Nation, I. S. P. (2001). Learning vocabulary in another language. Cambridge University Press.
- Novak, S. Y. (2020). On the t-test. Statistics and Probability Letters, 162, 1–19.
- Nuzulia, A. (2019). Uji reliabilitas Formula Cronbach Alpha. Journal of Educational Measurement, 6(11), 951–952.
- Odek, R., & Opuodho, G. (2023). F-test and p-values: A synopsis. International Journal of Statistics, 13(2), 59–61.
- Pendidikan, U., Idris, S., Malim, T., & Kashefian-Naeeini, S. (n.d.). Moving teaching and learning into the digital era. International Journal of Educational Technology, 5(2), 27–36.
- Qamariah, Z., Widiastuty, H., Maulana, A., Zidan, M. R., Basahil, A., & Inggris, T. B. (2023). Pengenalan kosakata bahasa Inggris menggunakan media video kepada anak-anak kelas 2 di Sekolah Dasar Budi Mulia. Jurnal Pendidikan Bahasa, 2(6), 353–357.
- Richards, J. C., & Schmidt, R. (2010). Longman dictionary of language teaching and applied linguistics (4th ed.). Routledge.
- Shadiev, R. (2020). Using image-to-text recognition technology to facilitate vocabulary acquisition in authentic contexts. ReCALL, 32, 195–212. https://doi.org/10.1017/S0958344020000038

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- Sinjai, S. (2023). Meningkatkan kemampuan menyusun kosa kata melalui penggunaan video pembelajaran berbasis Canva pada siswa tunarungu kelas IV di SLBN 1 Sinjai. Jurnal Pendidikan Khusus, 1(2), 111–121.
- Wright, T. S., & Cervetti, G. N. (2016). A systematic review of vocabulary instruction in early childhood. Reading Research Quarterly, 51(1), 35–59. https://doi.org/10.1002/rrq.163