



## The Effect of Watching TED-Ed Videos to Enhance Students' Vocabulary Mastery at MA Muhammadiyah Pekanbaru

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### Abstract

This study aimed to determine the effect of watching TED-Ed videos on students' vocabulary mastery at MA Muhammadiyah Pekanbaru. This research used a quantitative approach with a quasi-experimental design involving two classes: an experimental class and a control class. The population consisted of eleventh-grade students, with a total sample of 40 students selected through total sampling. The data were collected using pre-test and post-test vocabulary tests consisting of multiple-choice items to measure students' vocabulary understanding. The results showed that the mean score of the experimental class increased from 58.75 (pre-test) to 81.25 (post-test), while the control class improved from 53.65 to 62.25. The hypothesis testing using an independent samples t-test revealed a significance value of 0.000, which is lower than 0.05. This indicates that there is a significant effect of watching TED-Ed videos on students' vocabulary mastery. The improvement occurred because the use of audiovisual media helped students understand vocabulary in context, enhanced memory retention, and increased learning motivation. Therefore, it can be concluded that TED-Ed videos are effective in enhancing students' vocabulary mastery and can be used as an alternative learning media in English language teaching, especially in creating a more interactive, engaging, and meaningful learning environment.

**Keywords:** TED-Ed videos; vocabulary mastery; video-based learning,

### INTRODUCTION

English plays an essential role as a global language used in communication, education, science, and technology across the world. It is widely recognized as a lingua franca that connects people from different linguistic and cultural backgrounds (Mauliska, 2024). In Indonesia, English is taught at all levels of education, making it a crucial subject that supports students in accessing global knowledge and competing in the era of globalization.

One of the most fundamental components in learning English is vocabulary mastery. Vocabulary refers to the set of words that learners understand and use in communication. It plays a central role in language acquisition because it supports the development of all four language skills: listening, speaking, reading, and writing. Students with a wide range of vocabulary are able to express ideas more clearly, understand texts more effectively, and engage in meaningful communication (Nurhayati, 2024). Conversely, limited vocabulary can hinder comprehension and make it difficult for learners to participate actively in the learning process.

Despite its importance, many students still face challenges in mastering English vocabulary. These difficulties are often influenced by several factors, such as lack of exposure to English, limited practice opportunities, and the use of less engaging teaching methods. In many classrooms, vocabulary is still taught through traditional approaches, such as memorization and

textbook-based exercises, which may not provide meaningful learning experiences. As a result, students tend to forget vocabulary easily and show low motivation in learning English.

In addition, the learning media used in classrooms are often not aligned with the characteristics of students in the digital era. Today's learners are highly familiar with technology and digital content, which shapes their learning preferences. They tend to be more interested in interactive and visually rich materials rather than static text-based instruction. Therefore, the lack of integration of technology in teaching can reduce students' engagement and limit the effectiveness of the learning process (Rosadi et al., 2023).

The rapid development of information and communication technology has significantly transformed the field of education. In the digital age, technology-based learning media have become increasingly important in supporting effective teaching and learning processes (Devi et al., 2022). One of the most widely used forms of digital media in education is video-based learning. Videos provide a combination of visual and auditory input, which can help students understand abstract concepts, maintain attention, and improve retention of information (Setyaningrum et al., 2021). Furthermore, videos can present real-life contexts and authentic language use, allowing students to learn vocabulary in meaningful situations (Siregar et al., 2023).

From a theoretical perspective, the effectiveness of video-based learning can be explained through the Cognitive Theory of Multimedia Learning. According to Mayer, (2024), learning becomes more effective when information is presented through both visual and verbal channels, as it helps learners process and retain information more efficiently. In addition, the Dual Coding Theory suggests that combining words and images can strengthen memory and improve understanding, because learners process information through two different cognitive systems simultaneously (Susanti et al., 2025). Therefore, the use of multimedia, such as educational videos, can enhance vocabulary learning by providing richer and more meaningful learning experiences.

One of the innovative video-based learning platforms that can be utilized in English language teaching is TED-Ed. TED-Ed is an educational platform that provides animated and interactive videos covering various academic topics. These videos are designed to be engaging, concise, and easy to understand, making them suitable for students in different learning contexts. TED-Ed videos also provide clear pronunciation, contextual explanations, and visual illustrations, which can help students understand and remember new vocabulary more effectively. Moreover, the use of authentic materials from TED-Ed exposes students to real-world language use, which is beneficial for vocabulary development.

Based on preliminary observations conducted at MA Muhammadiyah Pekanbaru, several problems were identified in the teaching and learning process of English, particularly in vocabulary mastery. Students still experienced difficulties in understanding and remembering vocabulary, which affected their ability to comprehend English materials. The learning process was still dominated by conventional methods, and the use of technology was not fully optimized. As a result, students showed low motivation and engagement during the learning process. These conditions indicate the need for innovative teaching strategies that can improve students' vocabulary mastery while also increasing their motivation and engagement. The use of TED-Ed videos is considered a potential solution because it integrates visual, auditory, and contextual learning elements that are suitable for students in the digital era.

Therefore, this study aims to investigate the effect of watching TED-Ed videos on students' vocabulary mastery at MA Muhammadiyah Pekanbaru. This research is expected to provide empirical evidence on the effectiveness of video-based learning in vocabulary instruction. In addition, it is expected to contribute to the development of more innovative, engaging, and technology-based teaching strategies in English language learning.

## **METHOD**

This study employed a quantitative approach using a quasi-experimental design, specifically a pre-test and post-test non-equivalent control group design. Quantitative research is used to explain phenomena through numerical data and statistical analysis (Xiong, 2022). This design was chosen to determine the causal effect of watching TED-Ed videos on students' vocabulary mastery by comparing learning outcomes between the experimental and control groups. The research involved two groups: an experimental class and a control class. The experimental class received treatment using TED-Ed videos, while the control class was taught using conventional teaching methods. Both groups were given a pre-test before the treatment and a post-test after the treatment to measure students' vocabulary improvement. This design enables the researcher to identify the effectiveness of the treatment by comparing students' scores before and after the intervention (Ramadhani et al., 2019).

### ***Participants***

A population refers to a group of individuals or objects that share certain characteristics and become the focus of the study (Timamah et al., 2025). The population of this study consisted of all eleventh-grade students at MA Muhammadiyah Pekanbaru in the 2024/2025 academic year, totaling 40 students. The sampling technique used was total sampling, where all members of the population were included as the sample. A sample is a representative part of the population that reflects its characteristics (Timamah et al., 2025). The sample was divided into:

Table 1. Population

<b>Class</b>	<b>The Number of Students</b>
XI.IPA	20
XI.IPS	20
Total	40

### ***Instruments***

The research instrument used in this study was a vocabulary test in the form of multiple-choice questions consisting of 20 items. The test items were designed based on vocabulary materials appropriate for eleventh-grade students at MA Muhammadiyah Pekanbaru. Each item provided four answer choices, and students were required to select the correct one. Each correct answer was scored 1, while each incorrect answer was scored 0, resulting in a maximum score of 20. To convert students' raw scores into percentage form, the following formula was applied, adapted from (Utami et al., 2024).

By using this formula, the researcher could easily convert the number of correct answers into percentage scores, which simplified the data classification process and allowed for clearer interpretation of students' vocabulary mastery.

The percentage scores were then interpreted based on the following criteria:

Table 2. Classifications of scores

No	Score	Criteria
1	91-100	Excellent
2	76-90	Good
3	61-75	Average
4	51-60	Poor
5	0-50	Very Poor

This scoring system provides a clear, simple, and objective method for evaluating students' vocabulary mastery. Furthermore, it enables the researcher to compare students' performance before and after the treatment, making it possible to determine the effectiveness of using TED-Ed videos in improving vocabulary mastery.

### *Data collection procedures*

The data collection procedure consisted of three stages: pre-test, treatment, and post-test. The pre-test was administered to both groups to measure students' initial vocabulary mastery. During the treatment phase, the experimental class was taught using TED-Ed videos through activities such as watching videos, identifying new vocabulary, discussing meanings, and practicing vocabulary in context, while the control class received conventional instruction. Finally, the post-test was conducted to measure students' vocabulary mastery after the treatment. The use of video as a learning medium is effective in enhancing students' understanding through visual and auditory input (Setyaningrum et al., 2021).

### *Data analysis*

The data in this study were analyzed using SPSS version 25 to determine whether watching TED-Ed videos had a significant effect on students' vocabulary mastery. The analysis consisted of three main stages: normality test, homogeneity test, and hypothesis testing.

The normality test was conducted to determine whether the data were normally distributed, which is an important assumption for using parametric statistical tests such as the t-test. In this study, the Shapiro-Wilk test was used because it is considered more appropriate and sensitive for small sample sizes (Ahadi et al., 2023).

Table 3. Normality Test

	Kelas	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hasil	Pre-test A (Control)	.105	20	.200 <sup>*</sup>	.969	20	.733
	Post-test A (Control)	.128	20	.200 <sup>*</sup>	.942	20	.261
	Pre-test B (Experimental)	.162	20	.177	.912	20	.069
	Post-test B (Experimental)	.225	20	.009	.920	20	.100

Since all significance values were greater than 0.05, it can be concluded that the data in both the control and experimental classes were normally distributed. This indicates that the distribution of students' scores is relatively balanced and does not significantly deviate from the normal curve. Therefore, the data meet the assumption required to proceed with parametric statistical analysis, particularly the independent samples t-test. In other words, the use of further statistical testing is considered valid and reliable.

The homogeneity test was conducted to determine whether the variances between the two groups were equal. This test is important because it ensures that both groups have comparable variability before conducting further analysis. In this study, Levene's Test was used (Nurhaswinda et al., 2026)

Table 4. Homogeneity Test

Test of Homogeneity of Variance					
		Levene statistic	df1	df2	Sig.
Score	Based on Mean	6.243	1	38	.017
	Based on Median	4.671	1	38	.037
	Based on Median and adjusted df	4.671	1	37.693	.037
	Based on trimmed mean	5.945	1	38	.20

Since the significance value is less than 0.05, it can be concluded that the data are not homogeneous. This means that the variability of scores between the control and experimental groups is different. However, although the data are not homogeneous, the independent samples t-test can still be used by applying the appropriate assumption (equal variances not assumed). Therefore, the analysis can still proceed, but the interpretation must consider this condition.

Hypothesis testing was conducted using an Independent Samples t-test to determine whether there was a significant difference between the experimental and control groups after the treatment. Since the significance value is lower than 0.05,  $H_1$  is accepted and  $H_0$  is rejected.

This result indicates that there is a statistically significant difference between the post-test scores of the experimental and control classes. In other words, the improvement in students' vocabulary mastery in the experimental class was not caused by chance, but by the treatment given, namely watching TED-Ed videos. Furthermore, the higher mean score of the experimental class compared to the control class strengthens the conclusion that TED-Ed videos are effective in enhancing students' vocabulary mastery. The use of visual and auditory elements in the videos helps students understand vocabulary in context, improves retention, and increases learning motivation.

## FINDINGS AND DISCUSSION

This study aimed to determine the effect of watching TED-Ed videos on students' vocabulary mastery at MA Muhammadiyah Pekanbaru. The findings, based on the results of pre-test and post-test scores, show a significant improvement in students' vocabulary mastery, particularly in the experimental class. The pre-test results indicated that both the control and experimental classes had relatively similar initial abilities. The control class obtained a mean score of 53.65, while the experimental class achieved a mean score of 58.75. These results

suggest that students' vocabulary mastery before the treatment was still in the low to moderate category, and both groups started from relatively comparable levels. After the treatment, both groups showed improvement; however, the increase in the experimental class was significantly higher. The control class improved from 53.65 to 62.25, while the experimental class increased from 58.75 to 81.25. This substantial difference indicates that students who were taught using TED-Ed videos achieved better vocabulary mastery compared to those who were taught using conventional methods. The statistical analysis using the independent samples t-test revealed that the significance value was 0.000, which is lower than 0.05.

This result indicates that there is a statistically significant difference between the post-test scores of the experimental and control classes. Therefore, the alternative hypothesis ( $H_1$ ) is accepted, meaning that watching TED-Ed videos has a significant effect on students' vocabulary mastery. This finding confirms that the improvement in the experimental class was not due to chance, but was influenced by the treatment provided. The effectiveness of TED-Ed videos in improving vocabulary mastery can be explained through the Cognitive Theory of Multimedia Learning proposed by Richard E. Mayer, which states that learning becomes more effective when information is presented through both visual and auditory channels. TED-Ed videos combine narration, animation, and text, allowing students to process information through multiple channels, which enhances understanding and retention. In addition, this result is supported by the Dual Coding Theory, which explains that information presented in both verbal and visual forms is more easily stored in memory. Through TED-Ed videos, students not only hear the pronunciation of vocabulary but also see visual representations, which helps them understand the meaning more clearly and remember it longer.

The findings also revealed that students in the experimental class were more engaged and motivated during the learning process. They showed greater attention when watching the videos and were more active in identifying and using new vocabulary. This supports the findings of Utami et al., (2024), which state that video-based learning can enhance students' motivation and improve language skills. Similarly, Setyaningrum et al., (2021) emphasized that video media provides interactive and engaging learning experiences that facilitate better understanding. On the other hand, the control class showed only a moderate improvement. This may be due to the use of conventional teaching methods, which rely more on textbooks and teacher explanations without visual support. As a result, students may find it more difficult to understand and retain vocabulary, especially in the context of digital-era learners who are more familiar with interactive media.

However, it is important to note that a small number of students in the experimental class still required additional explanation from the teacher to fully understand certain vocabulary items. This indicates that although TED-Ed videos are effective, they should be complemented with teacher guidance to maximize learning outcomes. Overall, these findings demonstrate that TED-Ed videos are an effective instructional medium for enhancing students' vocabulary mastery. The integration of visual and auditory elements not only improves comprehension and retention but also increases students' motivation and engagement in the learning process. Therefore, the use of TED-Ed videos is highly recommended as an alternative strategy in teaching English vocabulary, particularly in the context of digital-era learning.

## CONCLUSION

This study set out to investigate whether the use of TED-Ed videos could enhance students' vocabulary mastery. The findings reveal that the integration of video-based learning, particularly TED-Ed, plays a significant role in improving students' vocabulary outcomes. More importantly, the results highlight that learning is more effective when students are exposed to meaningful input that combines visual and auditory elements, enabling them to understand vocabulary in context rather than through memorization alone. The improvement observed in the experimental class indicates that TED-Ed videos do not merely support vocabulary acquisition, but also foster deeper cognitive processing, better retention, and higher student engagement. This aligns with the initial expectation that the use of interactive and multimedia-based learning tools can address the limitations of conventional teaching methods, which often fail to fully engage students in the learning process.

Furthermore, this study underscores the importance of adapting teaching strategies to the characteristics of modern learners. In the digital era, students tend to respond more positively to dynamic and visually rich learning environments. Therefore, the use of TED-Ed videos represents not only an instructional alternative but also a pedagogical shift toward more student-centered and technology-integrated learning. However, the findings also suggest that the use of videos alone is not sufficient. Teacher guidance remains essential to ensure that students fully comprehend the vocabulary presented and are able to apply it appropriately. This indicates that effective learning occurs through the combination of technology and teacher facilitation. Based on these findings, it is recommended that English teachers incorporate TED-Ed videos or similar multimedia resources into their teaching practices to enhance vocabulary learning. Future research may explore the use of TED-Ed videos in developing other language skills, such as speaking, listening, or writing, or investigate their effectiveness across different educational levels and learning contexts.

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