

THE EFFECTIVENESS OF USING DUOLINGO IN TEACHING VOCABULARY TO CAMP CLASS AT LANGUAGE CENTER

¹Muhammad Miftahul Hia*, ²M. Syaichul Muhyidin,
³Wawan Herry Setyawan

^{1,2,3}English Department, Faculty of Teacher Training and Education,
Universitas Islam Kadiri

ABSTRACT

This study seeks to determine the effectiveness of the Duolingo app as a gamification-based learning tool for teaching vocabulary in order to assist students in improving their English language skills. This study used a quasi-experimental design with a Nonequivalent Control Group Design, which splits the class into two groups: experimental and control. The data was collected by developing vocabulary questions for both pre- and post-tests. The statistical tool from SPSS version 22 was used to analyse the data. The study's findings demonstrate how effective the Duolingo program is in helping students improve their English vocabulary. The independent sample t-test resulted in a Sig. (2-tailed) value of 0.000, which is statistically significant and less than 0.05. Furthermore, the average pre-test score (69.44 before using the Duolingo app) and post-test score (85.83 after using the Duolingo app) increased. This shows that students who were taught using the Duolingo app had different vocabulary mastery outcomes than those who were taught using traditional techniques or without the app. The Duolingo software is significantly more effective in helping students improve their vocabulary. Following the adoption of the Duolingo program, the Language Center noticed an improvement in its pupils' vocabulary.

Keywords: *English Teaching; Duolingo Application; Vocabulary Mastery;*

ABSTRACT

Studi ini berupaya untuk menentukan efektivitas aplikasi Duolingo sebagai alat pembelajaran berbasis gamifikasi untuk mengajarkan kosakata guna membantu siswa dalam meningkatkan keterampilan bahasa Inggris mereka. Studi ini menggunakan desain kuasi-eksperimental dengan Nonequivalent Control Group Design, yang membagi kelas menjadi dua kelompok: eksperimen dan kontrol. Data dikumpulkan dengan mengembangkan pertanyaan kosakata untuk tes pra dan pasca. Alat statistik dari SPSS versi 22 digunakan untuk menganalisis data. Temuan studi menunjukkan seberapa efektif program Duolingo dalam membantu siswa meningkatkan kosakata bahasa Inggris mereka. Uji-t sampel independen menghasilkan nilai Sig. (2-tailed) sebesar 0,000, yang secara statistik signifikan dan kurang dari 0,05. Lebih jauh lagi, skor pra-tes rata-rata (69,44 sebelum menggunakan aplikasi Duolingo) dan skor pasca-tes (85,83 setelah menggunakan aplikasi Duolingo) meningkat. Hal ini menunjukkan bahwa siswa yang diajar menggunakan aplikasi Duolingo memiliki hasil penguasaan kosakata yang berbeda dibandingkan dengan mereka yang diajar menggunakan teknik tradisional atau tanpa aplikasi. Perangkat lunak Duolingo secara signifikan lebih efektif dalam membantu siswa meningkatkan kosakata

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*Correspondence:
masmiftah3523@gmail.com

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mereka. Setelah penerapan program Duolingo, Language Center melihat adanya peningkatan dalam kosakata siswanya.

Keywords: *Penguasaan Kosakata ; Aplikasi Duolingo; Pengajaran Bahasa Inggris*

INTRODUCTION

In the era of globalization nowadays, foreign language skills are one thing that is very important to master in order to interact and compete globally, especially the ability to speak English which is crowned as an international language. English language skills are a must for everyone today. However, in fact, mastering English is often considered difficult and a big challenge by many people, especially beginners of various ages. This is mainly due to the limited number and understanding of their English vocabulary (Fatmawati, 2021). Pengembangan Video Animasi Powtoon Sebagai Media). One of the linguistic skills required to acquire a foreign language is command of vocabulary (Ulfah, 2021).

Everyone needs to have a strong vocabulary in order to become proficient in other areas including speaking, writing, listening, and reading. Learning a language's vocabulary is equivalent to learning the language itself. According to this theory, vocabulary is crucial to language acquisition. The quality of a person's vocabulary determines the quality of their language. Their likelihood of being proficient in the language increases with the depth of their vocabulary (Sasmitha & Thamrin, 2022). For students to improve their language skills, vocabulary is essential (Zakaria et al., 2022). The media utilized in the classroom is one resource that can help them expand their vocabulary. For language learners, media is essential to vocabulary development. Students' interest and engagement in vocabulary learning have been proven to be improved by a variety of interactive media, including games, songs, and pictures (Permana, 2020).

One of the main challenges in teaching English vocabulary, especially for beginners, is creating effective and interesting learning methods to increase motivation and language skills. For students who are interested in learning English, learning vocabulary is very important (Ajisoko, 2020). However, most teachers still tend to use conventional learning methods. Therefore, innovations are needed that utilize digitalization. In recent decades, studying English as a foreign language has undergone significant changes due to the advancement of digital technologies. Advances in technology make it essential to use when learning vocabulary and there is no denying that the use of apps affects learning outcomes (Puspitasari et al., 2022). Finding entertaining material that inspires students to study English can be made easier for teachers with the help of useful web resources. In the meantime, teachers play a crucial role in introducing and guiding pupils' usage of technology (Nasrul et al., 2023). Using the Duolingo app to teach vocabulary is one of them.

Duolingo is very effective for hourly language tests that can be implemented by teachers in the classroom, especially in Indonesia (Harahap & Daulay, 2023). The Duolingo application is becoming more and more popular as the primary option for learning. An application-based language learning platform called Duolingo was created with the idea of gamification in mind, which makes learning more engaging and user-focused. Because the Duolingo site offers users interactive games and

graphics, it is thought to be more entertaining and interactive, thus students will spend a lot of time learning a language. With its abundance of images and colors, the application's visual activity boosts students' motivation to learn (Saraswati et al., 2021). This application also provides interactive exercises that cover vocabulary, grammar, and listening and speaking skills, with automatic evaluation and feedback that help students understand their progress.

When learning a language, the Duolingo app is ideal for novices or people who do not know much about the fundamentals of English. One of the languages that can be expanded using this application is English (Tiara et al., 2021). This application is intended for all ages, from children to adults (Sari et al., 2023). Because of the way the Duolingo program is made, users can keep getting better at the language at any time and from any location. Duolingo is a game-like learning platform that makes learning engaging and simple. Duolingo was able to win award for this innovation because of how well the gamification strategy works to help a lot of people learn new things (Widyastuti & Kusumadewi, 2018).

The Duolingo application has become a novelty in the world of digital-based education for learning foreign languages and for those who want to become proficient in English. According to Jaskova (2014), Duolingo is the way of the future for language learning and communication worldwide. An program called Duolingo makes learning languages enjoyable and simple, allowing users to play with the app instead of feeling like they are studying. There are many languages on offer, and most importantly Duolingo can be used for free. This application has been used in various countries around the world, especially in learning English.

Numerous earlier academics have examined and tested the efficacy of the Duolingo program in teaching English vocabulary. Some studies that are relevant to this study are studies conducted by (Hardiyanti et al., 2021). In this study, the author taught seventh-grade pupils at MTs Mahyajatul Qurra' Lassang in Takalar English vocabulary using the Duolingo app. The author successfully used a test to gather data in an attempt to address the questions posed by the author. To determine the efficacy of the study findings, the author provides the following explanation. Students' vocabulary skills are undoubtedly improved by Duolingo. This is because Duolingo is a cutting-edge tool for teaching novices English vocabulary.

Additionally, as demonstrated by several features of the application, students in Class 3 A MI Tarbiyatul Islam can benefit from using the Duolingo software by expanding their English vocabulary, such as the evaluation of pupils' starting skills which then greatly affects the level to be passed, then features that can attract students' interest, then the repetition and practice question features.. Only then was it decided to be applied in selected classes. The trial class was initially chosen as an experiment, it turned out that the results were extraordinary, the increase was quite high as a result of using the Duolingo application (Aisyah & Hidayatullah, 2023). Other researchers explain that Duolingo program works well for teaching vocabulary (Indrasari et al., 2024; Aulia et al., 2020; Yuwono, 2022; Ananda et al., 2024),

Even yet, there are numerous pertinent studies that demonstrate how well the Duolingo program works to help students' vocabulary in a variety of learning contexts. Nevertheless, despite the relatively modest number of studies, there are also others that report the opposite findings. Loewen et al.'s (2019) research is

either the opposite of or inconsistent with earlier research that has been previously explained. According to the study's findings, participants chose to discontinue their language learning before the predetermined timetable because they were dissatisfied with the learning resources offered by the Duolingo app.

The differences in the results of previous studies cause and create the gaps. The gap is a condition where previous research has been conducted, but there are still areas that have not been studied properly so that this triggers researchers to carry out additional studies regarding the efficacy of Duolingo in vocabulary instruction.

Thus, the purpose of this study is to evaluate how well Duolingo works for teaching English at the Language Center. This study's primary goal is to assess how much vocabulary learning using Duolingo is superior to more conventional teaching techniques used in camp classes. It is anticipated that this project will yield hard data on Duolingo's efficacy in high-stakes learning scenarios like camp classes, as well as its implications for future English language instruction.

METHOD

The Nonequivalent (Pretest and Posttest) Control Group Design is the most often utilized paradigm in quasi-experimental research, claims Creswell (2018). The experimental group, which got treatment, was compared to a control group in the study.

During the Camp class activities, which took place from 5 to 6 a.m. and 6-7 p.m., this study was carried out at the Language Center In Kediri. Students that were enrolled in Language Center made up the study's participants. They were Mena and Bidan classes. Eighteen students from the class Bidan made comprised the experimental group. Eighteen pupils from class Mena made up the control group.

Both the class of Mena and Bidan took pretests and posttests; only the experimental class got treatment. The experimental class learned English vocabulary with the Duolingo app. In contrast, the control group They either received no treatment at all or received some treatment traditional English vocabulary instruction without the use of the Duolingo app. Thus, a quasi-experimental study was the research design employed.

Table 1. Research Design of Nonequivalent Control Group Design

Group	Pre-Test	Treatment	Post-Test
Experimental Class	01	X	03
Control Class	02	-	04

Source: Sugiyono (2012)

A sentence completion test served as the study's research tool. The researchers modified a vocabulary mastery test at the B1-B2 level to use in this investigation from the British Council through the website <https://learnenglish.britishcouncil.org/vocabulary/b1-b2-vocabulary>. The posttest and pretest consisted of ten questions each.

Two data analysis tests were performed in this study using the statistical tool of SPSS version 22: the analysis precondition and hypothesis tests. The analysis precondition test involved verifying whether the subjects in the Mena and Bidan

class were normal and homogenous prior to conducting a hypothesis test between the Mena and Bidan class using the independent sample t-test.

FINDINGS

At a Language Center, a thorough data analysis comparing the impact of traditional teaching methods and the Duolingo app on students' acquisition of English vocabulary produced some intriguing and significant results.

In order to improve students' vocabulary competency, this study attempts to find out how well the Duolingo program teaches English vocabulary. Pre- and post-test results for vocabulary knowledge varied between the 18-student Mena class, which was the control group, and the 18-student Bidan class, which was the experimental group. While the control group received education without the Duolingo program (conventional), the experimental group of students was taught using the Duolingo application. To evaluate the students' initial vocabulary, the experimental and control groups received identical pretest questions. Additionally, the Duolingo application was used to teach vocabulary to the experimental class, whereas more conventional methods or no Duolingo program were used to teach vocabulary to the control group. The identical posttest questions were given to each class in order to gauge the students' ultimate vocabulary ability.

Students were given a series of questions regarding their proficiency with English vocabulary at levels B1–B2 in both the pre-test and post-test. The experimental class's pre-test and post-test results are shown in Table 1, whereas the control class's results are shown in Table 2.

Table 2. Scores of Students' Pre-Test and Post Test in Experimental Class

No	Student's Initial	Pre-Test	Post-Test	Gained
1	IHFB	70	80	10
2	MRM	60	85	25
3	MARA	60	80	20
4	EA	70	80	10
5	MAG	75	85	10
6	MAR	85	90	5
7	MUH	85	90	5
8	OAL	75	95	20
9	RJST	80	95	15
10	RHH	60	80	20
11	RACE	70	85	15
12	ZMA	75	80	5
13	IBTYR	85	90	5
14	PR	50	75	25
15	ASA	70	85	15
16	AAN	80	85	5
17	ALDA	45	90	45
18	MRM	55	95	40

The Bidan class's pre-test and post-test results are shown in Table 2. Prior to using the Duolingo program, the pre-test score was acquired, and following therapy, the post-test score was acquired which entailed using the Duolingo program to teach vocabulary, was administered. One individual obtained the lowest post-test score of 75, while three others obtained the highest score of 95.

Table 3. Scores of Students' Pre-Test and Post Test in Experimental Class

No	Student's Initial	Pre-Test	Post-Test	Gained
1	ATT	55	60	5
2	NM	45	55	10
3	DBPY	70	80	10
4	NK	65	70	5
5	RNY	60	65	5
6	SNF	50	60	10
7	TRN	60	75	15
8	DHT	75	80	5
9	DRM	70	70	0
10	J	65	75	10
11	KAR	70	80	10
12	DFJSM	65	70	5
13	DZL	60	75	15
14	NASS	40	55	15
15	RN	65	75	10
16	SK	55	65	10
17	AQKP	65	75	10
18	BAR	60	70	10

Although the Duolingo program was not utilized in the learning activities, the pre-test and post-test results for the Mena class were obtained after the teaching and learning process, as indicated in Table 3 above. This class does not receive the same treatment as the experimental class because it is a control class. Using traditional methods, teachers are the only ones who provide guidance. Three people received the highest post-test score of 80, while one person received the lowest score of 40.

Using the SPSS Version 22 statistical program, the researcher initially displays the descriptive statistics of the study for further information.

Table 4. Output of Descriptive Analysis of Experimental Class and Control Class

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test Experiment	18	45	85	69.44	12.113
Post-Test Experiment	18	75	95	85.83	6.002
Pre-Test Control	18	40	75	60.83	9.115
Post-Test Control	18	55	80	69.72	8.130
Valid N (listwise)	18				

The pre-test Bidan's average score for the experimental class was 69.44, its greatest score was 85, and its lowest score was 45, as shown in the above table. The Bidan class received an average score of 85.83, a maximum score of 95, and a minimum score of 75 in the post-test trial. Every student does more than what is required of them. The average score of the students in this Bidan class increased significantly when vocabulary was taught using Duolingo, indicating that the students' English improved. The average pre-test and post-test findings served as the foundation for this conclusion. With a minimum score of 55, a maximum score of 80, and an average of 69.72, the post-test Mena class performed better than the

pre-test Mena class, which had a minimum score of 40, a maximum score of 75, and an average grade of 60.83.

The following diagram compares the Bidan and Mena classes' pre-test and post-test outcomes. It is evident that students' English vocabulary has increased as a result of using the Duolingo app in comparison to more conventional teaching methods. Examining the bar graphs for the pretest and posttest:

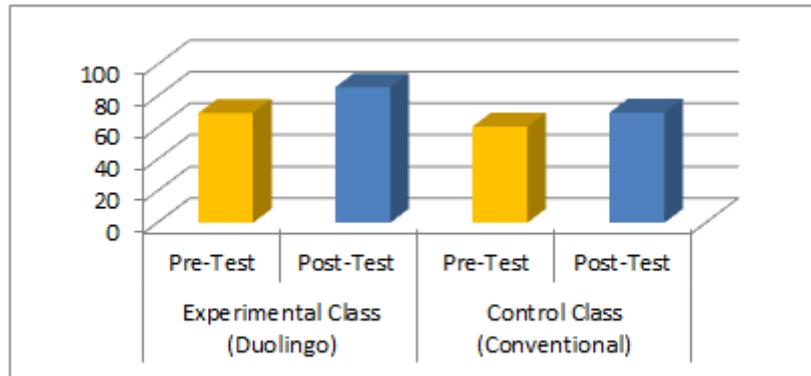


Figure 1.Diagram of Pre-Test and Post-Test Results for Experimental and Control Classes

The next step is to do prerequisite tests and hypothesis testing as follows, following the completion of the Bidan and Mena classes' pre-test and post-test:

Normality Test

In this study, to test data normality through SPSS version 22. However, in this study only Shapiro-Wilk will be used, this is because of the number of samples ($n < 50$).

Table 5.Normality Test Output

Class		Tests of Normality					
		Kolmogorov-Smirnova			Shapiro Wilk		
Result	Pre-Test Experiment (Duolingo)	Statistics	df	Sig.	Statistics	df	Sig.
	Post-Test Experiment (Duolingo)	.185	18	.105	.934	18	.230
	Pre-Test Control (Conventional)	.168	18	.195	.918	18	.117
	Post-Test Control (Conventional)	.186	18	.101	.933	18	.223
		.186	18	.099	.908	18	.080

a. Lilliefors Significance Correction

The aforementioned result indicates that the Shapiro-Wilk test's significance value (Sig.) is greater than $\alpha = 0.05$ (5%) for all data, including controls and pre- and post-test experiments. The Shapiro-Wilk test indicates that the Bidan class pre-test sig. value is $0.230 > 0.05$ and the Bidan class post-test sig. value is $0.117 > 0.05$. Additionally, the Mena class's pre-test sig. value is $0.223 > 0.05$, and its post-test sig. value is $0.080 > 0.05$.

Given that the pre-test and post-test findings from the Bidan and Mena classes satisfy the normality test criteria, it can be said that the study data utilized is normally distributed.

Homogeneity Test

Researchers use SPSS version 22 in testing data homogeneity with the Levene Statistics formula.

Table 6. Homogeneity Test Output

Test of Homogeneity of Variance					
		Levene Statistics	df1	df2	Sig.
Result s	Based on Mean	1,387	1	34	.247
	Based on Median	1.385	1	34	.247
	Based on Median and with adjusted df	1.385	1	31,666	.248
	Based on trimmed mean	1.176	1	34	.286

According to the mean value, the post-test significant value for the Bidan and Mena classes is 0.247, as indicated in Table 6 above. At 0.247, the significance threshold is greater than 0.05. Therefore, it can be concluded that the Bidan and Mena groups' post-test variances are equivalent or homogeneous. Thus, this study can proceed to the hypothesis test using homogeneous data.

Hypothesis Testing (Independent Sample T-Test)

The independent sample-t test is then used to test the hypothesis in order to ascertain whether the vocabulary mastery of the pupils in the experimental class and the Mena class differs significantly with the Duolingo application and without the Duolingo application (conventional) after normality and homogeneity tests have been completed and the data in this study have satisfied the requirements for these tests. The researcher employed the findings of the independent sample t test computation using SPSS to address the formulation of the research topic and ascertain if the Duolingo program is beneficial in enhancing students' vocabulary knowledge.

Table 7. Group Statistics

Group Statistics					
Class		N	Mean	Std. Deviation	Std. Error Mean
Result s	Experimental Class Post-Test (Duolingo)	18	85.83	6.002	1.415
	Post-test Control Class (Conventional)	18	69.72	8.130	1,916

The average post-test scores of the Bidan class that received therapy in the form of learning English vocabulary via the Duolingo application, which is 85.83, differ significantly from the group statistics table above. However, the Mena class, which using conventional means without the use of the Duolingo app, had average post-test scores of 69.72.

Table 8.Independent Sample T-Test Output

Independent Samples 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
Results	Equal variances assumed	1,387	,247	6,764	34	,000	16,111	2,382	11,270	20,952
	Equal variances not assumed			6,764	31,288	,000	16,111	2,382	11,255	20,967

Based on the independent sample t-test computation above, the Alternative Hypothesis (Ha) is accepted and the Null Hypothesis (Ho) is rejected with a Sig. (2-tailed) value of 0.000 < 0.05. This suggests that teaching vocabulary mastery to students using the Duolingo app has different results than teaching them using traditional techniques or without the app. The average post-test score of the Bidan class is significantly higher than that of the control group, indicating that the Duolingo app is a very effective tool for assisting students in improving their vocabulary in English.

DISCUSSION

The key findings of this study reveal that the use of the Duolingo app for teaching English vocabulary significantly enhances students' vocabulary skills compared to both the traditional teaching method and no treatment at all. The experimental group, which used the Duolingo app, demonstrated a significant improvement in their vocabulary skills, as evidenced by a notable increase in their post-test scores. Statistical analysis using SPSS (independent sample t-test) showed a p-value of 0.000, indicating a statistically significant difference between the experimental and control groups. The average pre-test score of the experimental group increased by 69.44 points, while the post-test score improved by 16.39 points, further confirming the effectiveness of the Duolingo app as a tool for vocabulary acquisition.

The results suggest that the Duolingo app is a highly effective tool for enhancing vocabulary acquisition among students. The statistically significant improvement in vocabulary scores among the experimental group points to the benefits of gamification and interactive learning environments provided by the app. The nature of the app, which integrates visual aids, audio prompts, and game-like exercises, likely contributed to the increased engagement and motivation of students. By moving away from traditional teaching methods, the Duolingo app seems to offer a more engaging and efficient way for students to acquire and retain vocabulary, especially for language learners at the B1-B2 level. The increase in post-test scores, albeit slightly smaller than the pre-test improvement, suggests that the app had a sustained positive effect on vocabulary retention.

These findings align with previous research that supports the use of technology and gamification in language learning. For instance, studies by Lutfi (2021) and Hidayati et al. (2021) have highlighted the positive impact of Duolingo and similar applications on language acquisition, particularly in vocabulary learning. Gangaianaman and Pasupathi (2017) and Taalas et al. (2018) also emphasize the advantages of incorporating technology into language instruction, noting how it enhances student engagement and language proficiency. Additionally, research by Aisyah & Hidayatullah (2023), Indrasari et al. (2024), and others corroborates the idea that Duolingo's gamification features provide a fun and interactive way for students to enhance their language skills, reinforcing the results found in this study.

The implications of this study are significant for both educators and students. For educators, this research suggests that incorporating technology, specifically gamified platforms like Duolingo, can be an effective strategy to enhance vocabulary instruction and improve student engagement. By integrating such tools into their teaching practices, teachers can provide a more interactive and enjoyable learning experience, which could lead to better student outcomes. For students, the use of Duolingo offers a self-paced and less intimidating approach to learning vocabulary, which could increase their motivation and confidence in language learning. The results also suggest that students may continue to use the app outside of the classroom, further reinforcing their learning and fostering independent study habits.

Despite the promising results, there are a few limitations to consider. First, the sample size in this study was relatively small, consisting of only 36 students, which may limit the generalizability of the findings. Additionally, the study was conducted in a specific educational context (the Mena Class), and the results may not necessarily apply to other groups or language levels. The study also focused solely on vocabulary acquisition, so the effectiveness of Duolingo in improving other language skills, such as grammar or speaking, remains unclear. Furthermore, the study did not track long-term retention of vocabulary, so it is unknown whether the improvements observed were sustained over time. Lastly, the study did not explore how students' prior experience with language learning apps might have influenced their results.

Future research should aim to address the limitations identified in this study and explore several directions. Expanding the sample size and conducting the study in diverse educational settings could provide a more comprehensive understanding of Duolingo's effectiveness across different contexts. Longitudinal studies could be conducted to assess whether the improvements in vocabulary retention are sustained over time. Moreover, future studies could examine the impact of Duolingo on other language skills, such as speaking, listening, and writing, to determine its overall effectiveness as a language-learning tool. Finally, investigating the influence of students' prior familiarity with gamified learning platforms or their intrinsic motivation could help further explain the variation in outcomes and improve the design of future interventions.

CONCLUSION

Considering the findings of the researchers' statistical analysis using SPSS version 22 and the previously described debate, significant and fascinating conclusions may be taken from this study. In particular, it has been demonstrated that the Duolingo program works well for improving pupils' English vocabulary. The independent sample t-test calculation provides a statistical demonstration of this (Sig. (2-tailed) value of $0.000 < 0.05$), indicating a difference in vocabulary mastery outcomes between students taught with the Duolingo application and those taught with traditional methods or without the Duolingo application. Furthermore, according to the descriptive test, the Bidan class's average pre-test score (69.44 before using the Duolingo program) and post-test score (85.83 after using the Duolingo application) increased by 16.39 and 16.39, respectively.

The rise in these outcomes when compared to simply employing conventional techniques suggests that the Duolingo app, which employs a gamification strategy that incorporates the idea of learning while having fun, is highly successful in teaching English vocabulary in the classroom, particularly in terms of enhancing students' vocabulary abilities.

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