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The Effectiveness of Linga App on Vocabulary Mastery in Reading among Senior High School Students

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Abstrak

Penelitian kuantitatif dengan desain pra-eksperimental ini meneliti perbedaan penguasaan kosakata antara siswa yang diajar dengan menggunakan aplikasi Linga dan siswa yang diajar dengan menggunakan aplikasi Linga dan siswa yang diajar tanpa menggunakan aplikasi tersebut. Sebanyak 36 siswa SMA kelas 11 yang menerima mata pelajaran bahasa Inggris tambahan (bahasa Inggris lintas minat) menjadi partisipan dalam penelitian ini. Penguasaan kosakata siswa diuji dengan menggunakan tes tingkat kosakata yang dikembangkan oleh Paul Nation dan kemudian diperbarui oleh Webb dkk. pada tahun 2017. Untuk menganalisis hasil tes, pengujian menggunakan paired sample t-test dilakukan untuk mengetahui perbedaan antara data pretes dan posttes. Hasil dari penelitian menunjukkan adanya perbedaan signifikan dalam penguasaan kosakata siswa. Hal ini ditunjukkan dengan hasil paired sample t-tes dengan nilai p-value <.001, yang menandakan signifikansi secara statistik. Selain hasil paired sample t-test, perhitungan effect size dengan menggunakan Cohen's d menunjukkan nilai efek yang moderat untuk hasil penelitian, dengan nilai Cohen's d sebesar 0.822. Untuk mendapatkan wawasan yang lebih dalam mengenai pengalaman peserta, kuesioner kuantitatif pascaeksperimen yang terdiri dari 10 item skala Likert diberikan. Hasil dari kuesioner menunjukkan bahwa peserta memberikan respon positif terhadap aplikasi Linga, yang mengindikasikan bahwa aplikasi ini efektif dan mudah digunakan. Mayoritas peserta menyatakan tingkat kepuasan yang tinggi terhadap fitur-fitur aplikasi, terutama yan gmedukung pelafalan, pembelajaran kata secara konstekstual, dan pelatihan kosa kata. Terlepas dari temuan ini, karena saat ini penelitian mengenai penggunaan aplikasi Linga dalam pembelajaran bahasa Inggris masih sangat terbatas, penelitian di masa depan didorong untuk mengembangkan temuan ini dengan subjek yang lebih besar atau keterampilan bahasa yang berbeda selain kosakata.
Kata Kunci: Vocabulary mastery, Mobile-Assisted Language Learning Application, Linga app

Abstract

This quantitative study with pre-experimental design examines the differences in vocabulary mastery between students taught using Linga app and those taught without it. 36 senior high school students in 11th grade who receive additional English subject (Bahasa Inggris lintas minat) served as the participants of this experiment. Students' vocabulary mastery was tested using the vocabulary level test developed by Paul Nation and then updated by Webb et al. in 2017. To analyze the tests result, paired sample t-test was administered to find out the difference between the data. The results of the experiment indicate a significant difference in students' vocabulary mastery. This is proven by the result of the paired sample t-test with p-value <.001, it means that the difference between the pretest and posttest scores is statistically significant. Besides the paired sample t-test result, effects size calculation using Cohen's d revealed a moderate effect value for the group, with Cohen's d value of 0.822. In order to gain deeper insights of participants' experience, a post-experimental quantitative questionnaire consisting of 10 Likert scale items was administered. The result of the post-experiment questionnaire revealed that participants responded positively to the vocabulary learning application, indicating it was effective and user-friendly. The majority of participant expressed high levels of satisfaction with the app's features, particularly those supporting pronunciation, contextual word learning, and vocabulary training. Despite these findings, as there is currently limited prior research regarding the use of Linga app in English language learning, future studies are encouraged to expand on these findings with larger subjects or different language skills other than vocabulary.
Keywords: Vocabulary mastery, Mobile-Assisted Language Learning, Linga app

INTRODUCTION

Vocabulary is the fundamental building block of language learning (Hadi, 2017). This claim is supported by the statement from a study that was conducted by Andriani & Sriwahyuningsih in 2019. They state that vocabulary is one of the key elements of English language learning and teaching science vocabulary gives

students the initial language access to all forms of the language (Andriani & Sriwahyuningsih, 2019). Besides that, vocabulary knowledge is a major part of comprehension skills. As a result, mastering vocabulary is a necessity in order to achieve good comprehension skills (Rahmasari et al., 2023). Rich vocabulary knowledge assists students in grasping the context in which words are used, leading to a deeper understanding of the text as a whole (Rabadi, 2023). This understanding not only aids in content retention but also supports academic success and effective communication (Moradi & Ghabanchi, 2019). In contrast, limited or less-well developed vocabulary knowledge can lead to difficulties in comprehending complex texts, as it restricts the ability to accurately interpret and process information (Grabe & Stoller, 2013). In conclusion, good comprehension skills depend on how much vocabulary knowledge students have in order to understand ideas in context. On the other hand, if the student does not have sufficient vocabulary mastery, it can be hard for students to grasp or comprehend the meaning of the text that they are learning.

The concept of vocabulary mastery cannot be separated with the concept of vocabulary acquisition. Paul Nation (Nation, 2001, 2012) developed a comprehensive framework for vocabulary acquisition, emphasizing that effective vocabulary learning requires a balanced approach. His theory revolves around four strands of vocabulary learning, which ensure that learners develop both receptive and productive knowledge of words. The four strands of vocabulary learning include:

a. Meaning-focused Input: Learners acquire vocabulary by encountering words in context through listening and reading.
b. Meaning-focused output: Learners reinforce vocabulary knowledge by actively using words in speaking and writing. This productive use of language will strengthen word recall and deepen understanding.
c. Language-focused Learning (Form-Focused): Form-focused means direct teaching of vocabulary through explicit instruction, exercises, and practice. This involves learning word meanings, pronunciation, spelling, collocations, and word parts.
d. Fluency Development: Learners improve fluency by using known words quickly and accurately. It requires extensive practice with familiar vocabulary at a comfortable difficulty level.

Understanding the aspects of vocabulary knowledge such as form, meaning, and use, is essential for effective vocabulary acquisition (Van Vu & Michel, 2021). Mastery of vocabulary goes beyond simply recognizing words. It requires the ability to apply them accurately in various contexts, both receptively (listening and reading) and productively (speaking and writing). Therefore, vocabulary mastery will be achieved when learners not only know the meaning and structure of words but can also use them fluently and appropriately in communication.

There are several reasons why vocabulary mastery is important in language learning. Firstly, vocabulary has significant roles for both academic performance and effective communication (Moradi & Ghabanchi, 2019). In this regard, Nagy and Scott (2000), as cited in Coleman and Concannon (2022), highlight that vocabulary mastery had a direct impact on academic success, work development, and social connections. Secondly, how well students comprehend a content, whether it is spoken or written, will be greatly influenced by their vocabulary. Having substantial vocabulary can assist students in understanding the point and purpose of the text. In this matter, Grabe and Stoller (2020) assert that an individual's extensive vocabulary correlates with their writing proficiency, reading comprehension, and overall language usage. When learning a second language, a broad vocabulary serves as the foundation for effective communication as well as the ability to engage with a variety of texts and discussions Wang (2023).

Despite its vital position in attaining proficiency, several problems and difficulties that interfere with effective learning often arise during the practice of teaching vocabulary. Sari & Wardani (2019) revealed the results of their studies about the struggle faced during teaching vocabulary. The study found that the majority of the students agreed that learning word meaning and pronunciation were the hardest thing to do in vocabulary learning, which made them to have less comprehension of the text. Additionally, to these problems, they also mentioned that many students have low motivation to learn vocabulary, which causes them to easily forget what they have learned. Usman et al. (2024) also discovered similar issues. According to the findings of an interview and observation done at one of Sumatra's junior high schools, students frequently require additional motivation to learn words. This issue develops due to a variety of factors, including inefficient teaching practices, strategies, media, and materials used by teachers. Due to the stated problems, choosing the suitable learning media is required since it can significantly enhance student engagement, boost interest, and improve motivation in vocabulary acquisition Kırkıc et al. (2023).

Currently, integrating learning media and technology is a common method to improve and cater language learning process Imran (2023). Information can be transformed to be more interesting and less tedious by

integrating technology with the learning media (Susanti et al., 2024). Gagne (2021) also stated that the integration of technology with learning media can help teachers to develop more flexible, interactive and customized learning experiences, which can positively impact students' learning outcomes. In order to support language learning experience, many application developers and educators have developed several beneficial tools which are often known as language learning apps. There are many types of language learning applications, yet this study is focused on one particular language learning application which is Mobile-Assisted Language Learning (MALL) application. MALL is one of the types of language learning applications that particularly use mobile devices such as phones and tablets to operate (Stockwell, 2022). Stockwell also mentioned that MP3/MP4 players, electronic dictionaries, and gaming consoles can also be considered as MALL. The integration of the applications and mobile devices makes MALL able to provide various options. These variations give students the freedom to choose the best way to learn based on their own personal learning style, which makes the vocabulary learning more effective and fun (Kayra, 2024).

Tiningrum and Seinsiani (2025) used Davis" (1998) Technology Acceptance Model (TAM) to find out students' acceptance of the Linga app in promoting extensive reading at higher level. Through interviews and questionnaires, the results showed students had positive perceptions of Linga's ease of use and usefulness, particularly in features such as translation, vocabulary, and progress-tracking. These tools aided them in independent learning and enhanced students' vocabulary and reading comprehension and fluency. Despite minor technical issues during the use, Linga app was found to be effective and relevant for extensive reading. Since the study regarding Linga app still limited, the previous study regarding MALL apps may be relevant to provide the base of this study. A previous study by Jabbar (2024) also explored the trends and developments of MALL in English education. The study highlighted several benefits of integrating MALL into English education. The utilization of MALL offers a number of benefits, including accessibility and flexibility, a personalized learning experience, fast feedback and assessment, as well as interactive learning. Following this, Benlaghrissi and Ouhadi (2023) conducted a study that specifically investigated the impact of Flashcard world app, which is also MALL, on developing EFL students' vocabulary mastery. The duration of the intervention was one semester and with 60 EFL students as participants who were equally divided into two groups, which are the experimental and control group. The result of the pretest and posttest showed that the experimental group outscored the control group and this indicated that the treatment had a positive impact on students' vocabulary mastery. In addition, Moyon (2024) also conducted a study that explored the integration of MALL in teaching English vocabulary and writing. The result of the study indicated that employing the MALL app, which was the Duolingo app, enhances student motivation, optimizes enjoyment and engagement by drawing students' interest, and fosters continuous learning through the integration of effective game design and elements into the learning environment.

Based on several previous studies, MALL has been proved to provide various benefits that could enhance learning outcomes and experiences. One of MALL applications that will be examined in this study is Linga App. This research will examine the effect of Linga App on students' vocabulary mastery. According to Linga (2025), Linga App is a mobile application that provides a wide range of free e-books and several features for language learning. Besides e-library, one of the features that the Linga app offers is a feature that allows the user to upload their personal learning material into the app, therefore students can customize their own learning. This feature is good to facilitate various levels and can provide every student's needs. Not only book-related features, there are many features of this app that could be useful for vocabulary mastery. Linga app offers several beneficial features, including advanced translation tool. This tools not only provide literal translation, but also provide the meaning based on the sentence context, thus students are able to understand the meaning of the word based on the context. The other beneficial feature is the pronunciation tool. students only need to tap the word and they can listen on how to pronounce the word properly. Lastly, the most important feature that could help in vocabulary retention is vocabulary training modes feature. This feature allows students to exercise on words they added during reading. There are six modes available to support students in recalling the words, including flashcard, multiple choice, build word, find matches, choose what you hear, and listen and build word.

Building on these features, each tool in the Linga app plays different role in facilitating vocabulary mastery. The contextual translation feature supports deeper word comprehension by helping students grasp meanings within specific sentence structures, which enhances incidental vocabulary learning during reading. The pronunciation tool guides students to produce correct pronunciation. Most notably, the vocabulary training modes strengthen retention through spaced repetition and multimodal practice. By engaging with words through varied interactive tasks, students are repeatedly exposed

to vocabulary in different formats, which could promote active usage that facilitate vocabulary mastery.

Despite the positive finding regarding the effectiveness of Mobile-Assisted Language Learning apps in language learning, there is still limited research that has yet specifically investigated the use of Linga App. Previous study regarding Linga app is only focused on the reading skill (Tiningrum & Seinsiani, 2025) and the other focused on apps like Duolingo and Memrise for vocabulary learning (Moyon, 2024; Benlaghrissi & Ouahidi, 2023), but research on Linga App on vocabulary mastery remains limited. To bridge this gap in the literature, the primary purpose of this study is to assess the effectiveness of the Linga App on high school students' vocabulary mastery for reading comprehension and contribute valuable insights to the field of digital language instruction.

METHODS

This research employed a quantitative approach utilizing a pre-experimental design. The application of pre-experimental design in this study is used to identify the initial cause-effect relationship between the variables. Pre-experimental design uses the elements of an experiment but lacks the necessary aspects to be a quasi-experiment or true experimental design, such as randomization and control group (Patten & Newhart, 2017). According to Dubey and Kothari (2022), there are several types of pre-experimental design that can be used by researchers, namely One-Shot Case Study, One-Group Pretest-posttest design, and Static Group design. This experiment will employ the one-group pretest-posttest design. This research design was chosen due to the school policy and several limitations regarding school's schedule.

Table 1

Pre-experimental Design

Pre-test	Treatment	Post-test
O1	*X*	O2

Note:

O_1: Students' vocabulary mastery of analytical exposition text before treatment.

X: Teaching vocabulary using Linga App (Treatment)

O_2: Students' vocabulary mastery of analytical exposition text after treatment.

The participants of this study were drawn from one unmodified class, which was 11th grade from one of the Senior High School in Surabaya. This one group served as the experimental group. According to Cohen et al. (2018), the minimum size of sample is thirty and suggested to be added more. The sampling method used in this research was purposive sampling, which involves selecting participants based on specific characteristics relevant to the research objectives. In this study, the sample consisted of 36 students from one of the eleventh-grade classes who received additional English subject. To gather the data, there were several instruments used in this research. Firstly, vocabulary test is the main instrument of this study. In an experiment, the pretest provides information about the measurement of a particular trait or quality in participants before they receive treatment, while the posttest is given after the treatment is completed (Creswell, 2012). In this research, Vocabulary Level Test is used as the instrument for both tests, which are pretest and posttest. Vocabulary Level Test is one of the vocabulary assessments that was developed by Paul Nation. Nation developed the VLT to determine learner's knowledge of high frequency and academic vocabulary. The VLT categorizes word knowledge into frequency bands, reflecting how often words appear in general English usage. Additionally, the VLT test is more focused on receptive vocabulary rather than productive vocabulary, which makes it more suitable for this research purpose since the focus is vocabulary mastery in reading analytical exposition text.

Test adaptation is needed in order to ensure that the test administered is the same with the vocabulary that is studied by the students. Besides that, the VLT adaptation was done in order to achieve more targeted instructional and research purposes. In this case, test adaptation is important due to several reasons. According to Iliescu (2017), test adaptation is important in order to achieve validity across contexts, fairness and cultural relevance, scientific rigor, and ethical testing. For adapting the test, which is the VLT, several steps need to be done. The processes include initial evaluation, translation (if it is needed), cultural adaptation, pilot testing, test of validity and reliability (psychometric analysis), and final revisions.

According to Nation (2001), vocabulary tests should consist of approximately 30 items. However, in this research, the test is modified, so it only has 10 questions and each question has two distraction words. To score the test, one point will be given to the correct answer for the target vocabulary. The additional distraction words won't be counted as the correct answer.

Since the research on Linga app is still not available, an additional instrument was used in order to enrich the data and provide information regarding students' experience while learning vocabulary using Linga app. The additional instrument that was used in this app is questionnaire. The questionnaire will be contained with 10 close-ended questions regarding the students'

experience while using the app. This questionnaire employed agreement Likert-scale, and it included strongly agree, agree, neutral (undecided), disagree, strongly disagree. The respondents of this questionnaire were all of the participants of the experiment. This was done to ensure that the data collected reflected the direct experiences of those who had actual exposure to the Linga app during the vocabulary learning activity.

Data collection was started by administering the tryout test for assessing reliability. Try out test was conducted on the 11th grade outside the sample. Then, the pretest was administered before treatment and followed by posttest and questionnaire after the treatment done. The treatment was conducted for three meetings, with the topic being healthy life style and environment, in line with chapter four of the students' textbook.

To analyze the data, normality test was the first test employed to check whether the data is normally distributed. After the data was found out be normally distributed, paired sample t-test and effect size were used, particularly to analyze the tests results. A paired sample t-test will be used to compare the means between pretest and posttest for the same group under two conditions, which are before treatment and after treatment (Cohen et al., 2018). To interpret the results of the calculation, effect size test using Cohen's d method was employed. In the other hand, to analyze the questionnaire results, basic descriptive statistics such as determining mean, standard deviation, and range were used.

RESULTS AND DISCUSSION

To evaluate the data, the researcher evaluated students' test scores using SPSS 30. Firstly, normality test was analyzed to see the data distribution. The result of normality test can be seen in the table below.

Table 2

Normality Test

Test	Shapiro-Wilk		
	Statistic	df	Sig.
Pretest	.963	36	.263
Posttest	.945	36	.075

For the pretest, the Shapiro-Wilk statistic was 0.963 with a significance value of 0.263, and for the posttest, the statistic was 0.945 with a significance value of 0.075. Since both p-values are greater than 0.05, the results indicate that the both data are normally distributed at the 0.05 level of significance. Therefore, a parametric test, which was a paired sample t-test was used for analyzing the significant difference between pretest and posttest.

Table 3

Paired Sample t-test

Test	t	df	Significance	
			One-sided p	Two-sided p
Pretest - Posttest	8.720	35	<.001	<.001

The result of paired sample t-test in table above indicated that the posttest scores of the group after the treatment had a significant difference with the pretest score. This was proven by the significance 2-tailed value of 0.001, which was lower than 0.05. Showed by this result, it can be claimed that there was a significant difference in the pretest and posttest scores. Therefore, it can be concluded that the use of the Linga app as a learning media had a significant effect on improving students' vocabulary mastery. As a result, the alternative hypothesis (Ha) can be accepted. To provide clearer improvement in vocabulary mastery, the table that contains percentage of correct answer for each target words can be seen below.

Table 4

Percentage of Correct Answer

Target Words	Question Number	Percentage of Students' Correct Answer	
		Pretest	Posttest
Suggest	1	75%	87%
State	2	94%	95.7%
Believe	3	77.8%	94%
Mistake	4	72.2%	91.3%
Issue	5	80.6%	95.7%
Exposure	6	69.4%	95.7%
Expectancy	7	75%	100%
Destruction	8	88.9%	100%
Efficacy	9	77.8%	95.7%
Runoff	10	75%	91.3%

The data presented in the table above indicates a persistent improvement in students' recognition of the target vocabulary after the treatment using the Linga App. For the ten target words, there was an increase in the percentage of correct answers from pretest to posttest.

For example, one of the target words like "exposure" showed a great improvement from 69.4 to 95.7%. While some other words reached a perfect 100%. The average increase across all words represents a positive trend in vocabulary mastery. The positive trends in answer accuracy suggest that MALL app-based intervention had a meaningful impact on students' vocabulary retention.

To find out to what extent is the effect of this significance, effect size test using Cohen's d standard guideline was used. The result can be seen in the table in the next sub chapter.

Table 5

Cohen's d Test for Effect Size

Test	Cohen's d Standardized	Point	95% Confidence Interval	
			Lower	Upper
Pretest - Posttest	0.822	1.453	0.977	1.919

Based on the table above, Cohen's d value is 0.822, which according to conventional benchmarks (Cohen et al., 2018), represents moderate effect size. This means that there has been a practical impact besides the statistical impact on students' vocabulary mastery. The point estimates and 95% confidence intervals (ranging from 0.96 to 1.92) support the reliability of these results. Since the confidence interval does not include zero, it can be assured that the effect is positive.

To support the results of the tests, questionnaire with five Likert scales was administered. To analyze the questionnaire, the quantitative descriptive statistic was used. The analysis includes the mean, range, standard deviation, and variance. The percentage of each response will be displayed first to give the overview of the responses.

Table 6

Percentage of Students' Questionnaire Responses

No	Question	Percentage				
		SD	D	N	A	SA
1	Is the app easy to use (both in terms of registration and operation)?	0%	0%	2.8%	2.8%	2.8%
2	The *pronunciation* feature is useful for me in learning the correct pronunciation of words.	0%	0%	55.6%	55.6%	55.6%
3	The *word translation in context and word elaboration* feature are very helpful for understanding the meaning of words in the context of sentences in the text.	0%	0%	41.7%	41.7%	41.7%
4	The *vocabulary training modes* feature really helped me to learn and remember new words I found in the text.	0%	0%	8.6%	8.6%	8.6%
5	The extensive library & import capability allows me to customize the learning according to my level when outside the classroom.	0%	0%	80%	80%	80%
6	The personal dictionary feature is very useful for organizing new words that I will learn in vocabulary training.	0%	0%	11.4%	11.4%	11.4%
7	The use of the Linga app makes it very easy for me to learn vocabulary both in terms of meaning and pronunciation.	0%	0%	0%	82.9%	17.1%
8	I want to continue using this app to learn English, especially vocabulary.	0%	0%	38.9%	55.6%	5.6%
9	My overall experience while using this app was memorable and worthwhile.	0%	0%	2.9%	74.3%	22.9%
10	I feel more motivated to learn English vocabulary through this app.	0%	13.9%	37.8%	45.9%	2.7%

A significant majority (77.8% agreed and 19.4% strongly agreed) found the app easy to use, both in terms of registration and operation, indicating that the interface and navigation were accessible and easy to navigate. Furthermore, features aimed at aiding pronunciation were also favorable as 97.3% of respondents agreed or strongly agreed that the pronunciation tool was useful in learning the proper pronunciation of words. This shows that auditory support plays an important role in vocabulary learning for students.

In addition, 91.4% of participants valued the contextual word translation and elaboration features, indicating that the tool effectively improved their understanding of vocabulary in sentence-level context, which is the critical component of meaningful language learning. Another important feature, which is the vocabulary training mode one, also scored highly with 94.4% positive responses, indicating that the app was successful in supporting vocabulary learning and retention.

In terms of costumized learning, features such as extensive library and import capabilities, which allow users to choose content that match their level showed that 80.5% agreed and strongly agreed, although 19.4% were neutral, which may indicate that not all students explore these features thoroughly. This result is consistent with the perspectives of Kukulska-Hulme & Shield (2008),

which emphasize that MALL offers enhanced opportunities for personalized, situated, and socially mediated learning. Their framework highlights how mobile technologies allow learners to engage with language materials in flexible contexts, which promotes deeper vocabulary internalization. The personal dictionary feature was considered useful by 77.2% of participants, but received the highest neutral response (22.9%), possibly due to users' different habits or ways in organizing new vocabulary or even the lack of clarity on the feature's function.

In addition, the majority of participants agreed with the app's overall contribution to vocabulary learning. With 82.9% of participants chosen agree and 17.1% strongly agree option. This means that the Linga app made learning vocabulary easier, both in terms of meaning and pronunciation. As a matter of fact, when they were asked about their intention to continue using the app after the treatment ended, the majority (55.6%) agreed and 38.9% remained neutral. This suggests that while the app is effective, students' long-term engagement for this app may depend on various factors beyond immediate benefits, such as motivation or integration into daily learning routines.

Overall, 97.2% of respondents were of the opinion that using the app was an enjoyable and rewarding experience. However, there was more variation in the result when it came to motivational impact. A total of 13.9% disagreed, 37.8% were neutral, and 45.9% felt motivated. These responses emphasize the need and potential for more improvement for future studies regarding engaging students' motivation while using Linga app. According to a previous study, MALL apps can have different effects on motivation. It depends on various factors such as app design, individual learner differences, and the integration of interactive features (Kukulska-Hulme & Shield, 2008).

In conclusion to this questionnaire results, it showed that the questions regarding the features of Linga app received positive response. This indicating that the features of Linga app could help the students learn vocabulary and it was effective and user-friendly. However, in the term of motivation and long-term use, the response had several variations. This indicating that the app did not give much influence in the term of motivation. Therefore, further research regarding this issue may be conducted in order to find out the reasons behind these responses regarding motivation.

These findings, both tests and questionnaire, are consistent with the previous study mentioned in the literature review chapter. Firstly, Basal et. al (2016) and Benlaghrissi and Ouhadi (2023), found the use of MALL app significantly enhanced students' vocabulary acquisition compared to traditional methods. Their study emphasized key benefits of MALL, such as flexibility, increased engagement, personalized learning and most importantly, improved vocabulary retention. Not only the result of the tests that are in line with the study, but also the questionnaire results shows that points mentioned by the study are approved during learning vocabulary using MALL. Kucuk & Daskan (2024), stated that integrating vocabulary learning with MALL also offers a great support to students' academic performance. Similarly, the study conducted by Alqarni (2024) showed that the use of MALL applications has a positive impact on students' academic performance, particularly in English vocabulary and grammar. It can be concluded that the results of this study are in line with several prior studies mentioned.

CONCLUSION

Based on the findings of this study, as indicated in the previously, it is evident that there is a significant difference in vocabulary mastery before and after the intervention. The use of Linga app is effective in improving students' vocabulary mastery, this can be proven by the t-test result. This result is in line with the alternative hypothesis and it can be said that the alternative hypothesis is accepted. On the other hand, the null hypothesis is fully rejected. This research implicates that Linga app is an effective MALL application to help students improve vocabulary mastery. For further studies should consider to employ larger samples, different research design, and extended durations to validate these findings. In addition, several suggestions can be made for teachers, and future researchers. For teachers, integrating Linga app and vocabulary instruction can be helpful since it can provide more variety in vocabulary learning and promote independent and contextualized vocabulary learning. However, to prevent the distraction possibilities, the use of the app can be combined with follow-up tasks or activities, such as group discussion. In that way, students might also practice the vocabulary in a productive way. In order to properly utilize the MALL app, teacher must serve as the main source of motivation and context. Teacher should plan in-call activities that combine the app's beneficial features with group projects to encourage continuous engagement and include the digital work into larger learning framework. For the future researchers, regarding the positive outcomes of this study, there are several limitations to address, which can be the potential for future studies. However, this research also has several limitations. The first limitation is the sample size. As explained in method sections, this research only used one group with 36 participants and employed pre-experimental research design. The research

sample in this study is restricted to a single school and a single specific subject, which may affect the generalizability of the results to a wider population. Thus, it may consider expanding the sample size and incorporating a range of text types. In addition, the intervention duration was relatively not long enough due to the school policy which made several aspects such as long-term effects of using Linga app on vocabulary learning might not captured. Additionally, this study focuses only on analytical exposition text and it is necessary to conduct further research to find out the effectiveness of the other type of text. Since this study only investigated the use of the app for vocabulary learning, future researchers could explore its potential for supporting other areas of English language learning, such as grammar, reading, or speaking skill (Stockwell, 2022).

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