



The Implementation of Ankiapp to Improve Students' Vocabulary Mastery

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ABSTRACT

This study aims to investigate the potential enhancement of students' vocabulary mastery through the utilization of AnkiApp. The research design employed in this study is a pre-experimental design. The population under scrutiny comprises 48 students distributed across three classes. The sample selected for this study is Class VII.1, consisting of 15 students, chosen through purposive sampling techniques. The research procedure involves the initial administration of a pre-test to assess the baseline vocabulary mastery of the students before the implementation of the AnkiApp intervention. Subsequently, a post-test is administered to evaluate the impact of AnkiApp on vocabulary learning. Data analysis is conducted through automated procedures utilizing Microsoft Excel 365, employing the paired two-sample t-test from the toolbar menu to compare the average scores. The findings reveal that the mean score of the students' post-test is 68.4, surpassing the average score of the students' pre-test, which stands at 26.6. This discrepancy indicates a statistically significant improvement in students' vocabulary mastery resulting from the effective implementation of AnkiApp.

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1. Introduction

Education has an important role in life, especially in learning a foreign language which is often boring. It is undeniable that education is affected by technological advances, and many benefits of technology can be used. For example, with easy internet access for teachers or teaching staff via the internet, the material can easily search for teaching support materials via the internet, the material can be online articles, etc. (Bakti & Ali, 2023; Noviasmy et al., 2023). Many learning media around us can support learning activities with the advancement of information and technology today (Ali et al., 2023), for example, with the AnkiApp smartphone application. This application can be used in making learning media so that learning feels more enjoyable, and is easy to use by all ages.

AnkiApp represents a dynamic flashcard-based application designed to facilitate the acquisition and memorization of information through systematic repetition. This application can be used to learn a diverse array of materials, including English vocabulary. In addition, AnkiApp offers advanced features such as sound playback, image insertion, and the flexibility to review material at the student's convenience. The

interactive nature of flashcard-based learning not only enhances student engagement but also ensures that the learning experience remains lively and interesting.

MTs DDI Taqwa Parepare is one of the secondary schools in Parepare, South Sulawesi, with a primary emphasis on Islamic education. In the scope of this study, the primary focal point is the evaluation of students' proficiency in English vocabulary at MTs DDI Taqwa Parepare. This emphasis arises because of the identification of a pertinent issue within the school context: a noticeable constraint on students' English vocabulary. This concern has been substantiated through thorough observations, revealing a prevalent limitation among many students at MTs DDI Taqwa Parepare in their command of English vocabulary. This deficiency, if unaddressed, has the potential to impede their comprehension of the subject and hinder effective communication.

So far, most English learning is delivered using lecture methods and the use of learning media is very minimal. Even if available, the majority are only wall drawings that contain English vocabulary (Hasanah & Ali, 2021; Muallim et al., 2023). One support for teaching materials in English learning is by utilizing the learning media. Using learning media at the learning orientation stage will help the effectiveness process and the delivery of the message and content of the lesson (Mujahidah, 2017). Besides generating motivation and interest from students, learning media can also help students increase understanding.

Based on the background of the problems above, researchers conducted research on implementing the AnkiApp application as a Learning Media. The existence of learning media using flashcard media is expected to help improve students' vocabulary mastery so that they can achieve excellent results and provide convenience to teachers and students in efforts to improve English learning vocabulary (Aba, 2019). In addition, the researcher also hopes that the use of the AnkiApp as a Flashcard Learning Media can provide learning media at MTs DDI Taqwa Parepare that teachers can use in learning English vocabulary so that learning becomes more interesting. It is hoped that the results can provide benefits for the development of technology in learning and improve the quality of education in schools specially in enriching vocabulary.

The first research is conducted to find out whether Anki (a computer - based flash program) is effective in teaching vocabulary of the second-grade students of SMPN 6 Makassar (Jaya, 2020). This study was quantitative method, pre-experimental design with one-group pretest-posttest. The results of the study show that the use of Anki (A computer-based flashcard program) was effective in enhancing students' vocabulary mastery.

The second research is conducted to find out whether using Anki-flashcard can increase students' vocabulary as a learning-teaching aid in learning English (Iravi & Malmir, 2023). This was quantitative research of pre-test and posttest with a pre-experimental design. The results of the study show that the use of the Anki-Flashcard was effective in increasing students' vocabulary.

The third research is conducted to explore the effect of Anki and WhatsApp on the vocabulary retention of Iranian EFL learners (Khoshsima & Khosravi, 2021). The study's design was quasi-experimental with three groups of WhatsApp-based vocabulary instruction, Anki-based vocabulary instruction and the traditional one. Sixty EFL learners studying English in a language institute took part in the study, and were divided into three groups of twenty. The results of the repeated measures Anova showed that Anki-based and WhatsApp-based vocabulary instruction were effective in enhancing their vocabulary retention.

The fourth research is conducted to determine the effectiveness of the AnkiDroid application learning media on the Japanese vocabulary skills of SMK Negeri 1 Tondano students after using the AnkiDroid application (Nender et al., 2022). The method used was a quasi-experimental method. The results that this application media has proven to be very effective in the process of teaching and learning Japanese, especially for memorizing Japanese vocabulary.

The fifth research is conducted to investigate the extent to which a computer-based flashcard program, Anki, can help college-level ESL learners improve their vocabulary and the learners' perceptions about the program (ERSOY ÖZER & Koçoğlu, 2017). This was quantitative and qualitative research of pre-test and posttest. The results present the benefits that might be gained from integrating flashcard programs into a language classroom, as well as the perceptions of learners about the process.

2. Literature Review

2.1 AnkiApp Application

First launched in 2006, Anki at its heart is a straightforward flash card app that uses spaced repetition technology to make memorizing and learning more effective (Levy et al., 2023). Initially primarily made as a learning resource for language students, Anki has since become widely used by students of all areas.

There are four main versions of Anki: 1. Anki Desktop is a completely free program which you download to your computer, has all of Anki's features. 2. AnkiWeb is an online version of Anki that can be used alongside the desktop program. However, it has quite limited uses and you need to download the computer version for the full experience. 3. Anki Mobile is the iOS version of the application which is a paid companion for the free computer program. 4. AnkiDroid is the Android version of the app. It is free like the computer version and was made by different developers (Levy et al., 2023).

AnkiApp is an application that functions as a medium for memorizing vocabulary in various languages, especially English (Nguyen, 2021). In this application, we can create our own risky small cards that we want to memorize. This application helps us in memorizing vocabulary with color features. The red color that says Fail means not memorizing at all and want to memorize it again, the orange color, hard means we are quite memorized, the blue color, good means if we memorize enough, and if we really have memorized, we can choose green, which is easy (Lê Ngọc et al., 2021).

2.2 Vocabulary Mastery

According to Akdogan (2017), vocabulary is more important than grammar because we can speak without a correct grammar structure, but we cannot speak without vocabulary. Words are the root of communication and a strong vocabulary that enhances all areas of communication, such as listening, speaking, writing and reading. Vocabulary mastery is needed to express our ideas and to understand other people's sayings (Rahman et al., 2023). If language is a body, grammar is the bones that make up the frame, while vocabulary is the flesh that makes the body take shape. Thus, a person cannot communicate well if the vocabulary is inadequate (Harmer, 2010).

Ismatullayeva (2020) stated that vocabulary is the first way to communicate with each other and express their opinion, statement, and expression. So, vocabulary items can and will constantly be add end to the overall knowledge of the learner. In addition, vocabulary is defined as many words that students have to know, not only memorizing the form of the word but also can understand the meaning (Huda et al., 2022). To understand a language, one needs to know the words first. The mastery of vocabulary has the primary aim of learning, namely: 1) finding the meaning of a foreign or new language word; 2) continuing to keep the memory of newly learned words; and 3) broadening the range of knowledge about a foreign or new word (Patahuddin et al., 2017). Next, according to Dodigovic (2018), mastery is knowing lots of word in a language. In this, only two aspects are mentioned, namely knowing a word involves knowing form and meaning of a word.

2.3 Vocabulary in EFL Classroom

Teaching vocabulary is crucial for junior high school students, particularly in the context of Curriculum 2013, where they are expected to describe people and things around them (Lestari, 2023; Warman et al., 2021). To effectively describe their surroundings, students require a range of vocabularies, including terms related to objects, habits, actions, and the functions of various items. The teacher's role in this process is paramount; they must be well-prepared, mastering the material and employing current techniques that enhance their teaching (Alqahtani, 2015). The teacher's influence extends to the selection and integration of learning media in the classroom, ensuring alignment with students' needs and the broader curriculum (Faizal & Ali, 2022).

In the realm of English language learning, four primary vocabulary types are emphasized: a) Listening Vocabulary, acquired through understanding spoken words; b) Speaking Vocabulary, used in verbal communication with occasional nuances addressed by facial expressions, tone, or gestures; c) Reading Vocabulary, comprehended when reading text, though not always actively used in verbal communication; and d) Writing Vocabulary, employed when expressing thoughts in writing, enabling effective communication of ideas.

Further classification of vocabulary is presented by Dakhi & Fitria (2019), distinguishing between active and passive vocabulary. Active Vocabulary refers to words readily used and understood in speaking and writing, while Passive Vocabulary consists of words understood but not yet actively used. The importance of vocabulary in learning English is highlighted by Johnston (2023), emphasizing its role in understanding others and expressing one's ideas. Teaching vocabulary is acknowledged as a complex task, involving imparting the meanings of words. Sternberg (2014) recommends that effective teaching should incorporate various techniques and ample practice for specific words to achieve objectives.

Susanto (2017) provides insights into techniques for teaching vocabulary to beginners, including the use of commands, appropriate objects for teaching, leveraging communication experiences in the classroom, and

recognizing the value of student-drawn pictures. In summary, the coherent teaching of vocabulary encompasses multiple dimensions, involving teacher preparation, effective use of learning media, and the implementation of diverse techniques tailored to the needs of the learners.

3. Method

This research utilized a pre-experimental method, as outlined by Sugiyono (2018), which involves assessing a single group or class through both pre- and post-tests. In this design, the pretest and posttest evaluations were conducted within the same group, without the inclusion of a control or comparison group. The study's population comprised 48 seventh-grade students from MTs DDI Taqwa Parepare, organized into three classes. However, for the purposes of this research, one specific class, namely class VII 1, consisting of 15 students, was selected as a representative sample. The selection process adhered to purposive sampling principles.

To evaluate the students' vocabulary mastery before and after the treatment, tests were employed as instruments. The study involved two assessments: a pre-test and a post-test. The data collection process began with the distribution of the pre-test to gauge the students' initial vocabulary mastery. Subsequently, a six-session treatment, incorporating the use of AnkiApp in the classroom over four meetings, was administered. Post-treatment, a post-test was conducted to measure the students' vocabulary mastery, concluding the research procedures.

Quantitative analysis was applied to process the collected data. The researcher scored the pre- and post-test results, calculated the data, and classified the students' scores. All data analysis steps were executed using the T-test deviation in Microsoft Excel 365, with the aim of identifying differences between the Pre and Post Test outcomes.

4. Results and Discussion

4.1 Results

Table 1. Students' scores on the pre-test and post-test.

No	Category	Pre-test		Post-test	
		Score	Classification	Score	Classification
1	Maximum Score	46	Poor	96	Excellent
2	Minimum Score	10	Very Poor	30	Very Poor
3	Mean	26.6	Very Poor	68.4	Fair
4	Median	23	Very Poor	70	Fair
5	Modus	16	Very Poor	70	Fair

Table 1 displays students' pre-test and post-test scores, categorized from very poor to excellent. Pre-test results show a mean score of 26.6 (very poor), while post-test scores improve to a mean of 68.4 (fair). Median scores increase from 23 (very poor) to 70 (fair) in the post-test. Both pre-test and post-test modes are 16 (very poor) and 70 (fair). The range spans from a minimum of 10 (very poor) to a maximum of 96 (excellent).

Table 2. Scores classification on the pre-test and post-test.

No	Classification	Pre-test		Post-test	
		Freq.	%	Freq.	%
1	Excellent	0	0	3	20
2	Good	0	0	2	13
3	Fair	0	0	7	47
4	Poor	2	13	2	13
5	Very poor	13	87	1	7
	Total	15	100	15	100

Table 2 illustrates the classification of scores on both the pre-test and post-test. In the pre-test, no students achieved an excellent or good classification, while in the post-test, 20% attained an excellent and 13% received a good classification. Fair classifications were absent in the pre-test but increased to 47% in the post-test. Poor classifications accounted for 13% in both tests. Notably, the majority of students fell into

the very poor category in the pre-test (87%), which decreased to 7% in the post-test. The total frequencies sum up to 100% for both tests, reflecting the distribution of scores across the classifications.

Table 3. The mean score of the pre-test and post-test

	Pre-test	Post-test
Mean	26.6	68.4

In Table 3, a comparison of mean scores reveals a substantial difference between the pre-test (26.6) and post-test (68.4). The higher mean score in the post-test signals a clear improvement, indicating the effectiveness of the AnkiApp application in enhancing vocabulary mastery for Class VII.1 students. This outcome supports the interpretation that the AnkiApp treatment has been successful in positively influencing and elevating students' proficiency in vocabulary within the specified class.

A normality test was conducted on the data obtained from both the pre-test and post-test before proceeding with the t-test. The purpose of the normality test was to assess whether the data distribution adhered to a normal pattern, utilizing the Kolmogorov-Smirnov test approach. With a sample size (n) of 15 and a significance level (α) set at 0.05, the critical value was determined to be 0.338. The data were normally distributed if the calculated test statistic was lower than the critical value.

The outcomes of the normality test calculations, conducted through the Kolmogorov-Smirnov approach, are detailed in the table below.

Table 4. Kolmogorov-Smirnov Normality test of pre-test and post-test.

	Pre-test	Post-test
N= Sample	15	15
Mean	26.6	68.4
S =Standard Deviation	11.444	16.392
D= Kolmogorov-Smirnov Value	0.157	0.128
KS Tabel	0,338	0,338

Based on the results of the normality test with the Kolmogorov-Smirnov approach in the pre-test, it was known that $0.157 < 0.338$, while the results of the normality test in the post-test were $0.128 < 0.338$. So that it can be concluded that the data were normally distributed. Calculations using the Microsoft Excel 365 application.

The results obtained through automated data analysis in Microsoft Excel 365, using the toolbar menu for paired two-sample t-test, were aimed at discerning any differences in means between the paired pre-test and post-test data samples.

Table 5. T-test paired two sample

	Pre-test	Post-test
Mean	26.6	68.4
Variance	130.971	268.686
Observations	15	15
Pearson Correlation	0.276	
Hypothesized Mean Difference	0	
Df	14	
t Stat	9.41	
P(T<=t) one-tail	0.000	
t Critical one-tail	1.761	
P(T<=t) two-tail	0.000	
t Critical two-tail	2.145	

The table above shows that the t-statistics value or t-test value was 9.41, then the number of observations or the number of the data was 15 so that the df was 14 ($Df = N - 1$) for significance level (α) 0.05 the value of t-critical two tails or t-table was 2.145. It was known that the value of the t-test was higher than the value of the t-table ($9.41 > 2.145$), it can be concluded that the vocabulary mastery of students has increased or better after the treatment was applied. Thus, the null hypothesis was rejected, and the

alternative hypothesis was accepted. Therefore, it can be stated that implementing AnkiApp was effective in improving students' vocabulary mastery in seventh-grade students of MTs DDI Taqwa Parepare.

4.2 Discussion

Based on the results of data analysis, it was shown that the AnkiApp application was effective in learning vocabulary. From the results, it could be seen that there were significant differences between student achievement before and after using this application. The students' score after being given the treatment is higher than the score on the pre-test. The observed shift in score classifications from pre-test to post-test is attributed to the use of the AnkiApp application, known for its vocabulary-building features (Liang, 2018). The results of the calculation of the average value of the pre-test and post-test showed an increase. The average value of the pre-test was 26.6, while the average value of the post-test was 68.4.

To determine hypothesis is accepted between the null hypothesis (H_0) and the alternative hypothesis (H_a), the data was distributed by using the t-test are normally distributed by carrying out a normality test with the Kolmogorov-Smirnov Approach (Al-Labadi & Zarepour, 2017; del Barrio et al., 2020). The researcher used the t-test to obtain a t-test value that is higher than the t-table value ($9.41 > 2.145$) with degrees of freedom $Df = 14$, so that the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected, meaning that the implementation AnkiApp as an effective as a learning media to improve vocabulary mastery of class VII 1 students of MTs DDI Taqwa Parepare.

This increasing can occur because this application has interesting features which contain flashcards that can be downloaded from a selection of 80+ million ready-to-use and AnkiApp allows users to create their own flashcards (Khoshsima & Khosravi, 2021; Liang, 2018). Creating cards is as easy as typing what you want on the front and back of each card. Besides plain text, users can add images and sounds to flash cards. AnkiApp also tests knowledge in quick sessions of one minute or less and can display progress daily. AnkiApp is also available worldwide in up to 155 countries and is available in English, French, German, Chinese, Portuguese and Romanian.

The Function of AnkiApp here is as a tool for memorizing vocabulary in various languages, especially English. In this application, we can create our own risky small cards that we want to memorize. This application helps us in memorizing vocabulary with color features. The red color that says Fail means not memorizing at all and want to memorize it again, the orange color, hard means we are quite memorized, the blue color, good means if we memorize enough, and if we really have memorized, we can choose green, which is easy (Laws, 2002).

AnkiApp implementation can be done in groups or individually. In implementing it in groups, students are divided into several groups and students pay attention to the vocabulary material that will be taught, which contains the names of objects, pronunciation, and pictures of these objects. As for individual learning, students can log in to class groups that have been created in the AnkiApp application and students no longer need to download the application. Students simply enter the class link using e-mail and students can learn the vocabulary that has been created. This application even has a repetition feature where students can repeat vocabulary that is difficult so that this feature can help students improve their memory by memorizing. Students can also see their achievements every day in their learning to use AnkiApp.

Here are some benefits of using AnkiApp as a learning media: 1) Personalized learning: AnkiApp allows you to create your own flashcards, which means you can tailor your learning experience to your individual needs and preferences. This is especially useful for subjects that require a lot of memorizations, such as languages, medical terminology, and scientific concepts. 2) Spaced repetition: AnkiApp uses a spaced repetition algorithm to present flashcards at intervals optimized for long-term retention. This means that the app will show you flashcards that you are more likely to forget more frequently, and flashcards that you are more likely to remember less frequently. 3) Mobile accessibility: AnkiApp is available as a mobile app, so everyone can study on-the-go whenever and wherever you want. This makes it an incredibly convenient learning tool for busy students and learners. 4) Gamification: AnkiApp incorporates gamification elements into its design, such as rewards and progress tracking. This can help make learning more engaging and motivating, especially for students who are competing with themselves or others.

Ankiapp uses one of the best algorithms for spaced repetition. It is one of its greatest strengths. Anki's algorithm automates the flash cards' reappearance at different time intervals depending on the card's age and your ability to answer different questions. Thus, you'll be able to hit long-term memory, as the time between each reappearance elongates, and you can still reply to the question. It has been proven that the

longer the time intervals get, the more effective the method gets. With Anki, it is possible to change the time intervals between each card reappearance.

To begin with, I advise you to leave the default settings on. You'll be able to get used to the program and your cards. Once ready, it will be time to change your cards' respawn interval. They allow you to improve your experience on the interface and be more efficient with your work. This list compiles Add-ons to optimize your time, stay organized, see your progressions, and make Anki look fancier. Using flashcards is a long journey with a serious commitment. This option, available for free, allows you to access your cards in all cases—no more excuses. Organization is essential when it is effortless to have many cards. Anki lets you arrange your cards using tags that should be related to specific themes or subjects. It is crucial to find the right cards related to the subject. So, you don't lose time during your revisions. If you do not want to waste time making your cards yourself, there are plenty of decks available on the Internet and free to download. Note that you will always have the possibility to change your cards once downloaded. You can add information in the extra box to make your cards more relatable to you.

Overall, AnkiApp is a powerful and flexible learning tool that can help you improve your retention and understanding of important material. It is a brilliant choice for anyone who wants to learn more efficiently and effectively, and is especially useful for those who need to memorize large amounts of information.

It is also known that the teacher lacks learning media in the learning process so that it makes students very bored and lacks motivation to learn so that in applying this AnkiApp application as a learning media it attracts more attention and interest of students so that students are more enthusiastic in the learning process, and the flashcards in AnkiApp is easier and faster for students to understand. Guessing activities in vocabulary learning with AnkiApp as a learning media provides a very active learning environment, also makes vocabulary more embedded in students' memories and builds self-confidence. Students are required to focus on thinking, students are not afraid to make mistakes by continuing to answer by thinking and spelling repeatedly when students guess so that students are used to it and can remember it themselves.

Learning with AnkiApp media, which contains flashcards, is a fun activity and makes more memories so that students are happy in the learning process. When applied to students who previously studied monotonously, AnkiApp can help avoid boring classes. For students who feel that learning English initially thinks vocabulary is too difficult after using AnkiApp, it really helps students to slowly reduce difficulties so that students can learn more easily, quickly, and can even strengthen their memory because in AnkiApp students can see pictures of the vocabulary itself and there are repetition feature. The results are supported by the opinion of Rousyan Fikri in his Twitter that in learning, especially rote material and remembering, it must be balanced with space repetition techniques so that learning results are maximized. Because by giving a time lag between study sessions, you can better remember the material. Besides the use of new learning media, gift giving is also very influential in increasing student motivation and activeness in learning so that learning activities can take place well.

Some of the key features that set Anki apart from other flashcard apps and websites include: Support for a wide variety of media types, including text, images, audio, and videos. The ability to create and share custom decks with other users. Advanced customization options, such as adjusting the interval between repetitions and adjusting the ease factor of cards. A powerful search function that allows users to quickly find specific cards or information within a deck. Syncing across multiple devices and platforms, including desktop, mobile, and web. Overall, Anki is considered being one of the most effective and versatile flashcard apps available, and is popular among students, language learners, and anyone looking to improve their memory and retention of information.

The AnkiApp application is effective in improving students' vocabulary mastery. In line with the theory (ERSOY ÖZER & Koçoğlu, 2017; Fitri et al., 2022), which states that the Quizlet application, which is similar with the AnkiApp, is proven to improve students' vocabulary mastery. Quizlet was launched by the public in 2007, One year later than Ankiapp. This is a flashcard application that also uses games and tests to help students learn and memorize. Like Ankiapp, Quizlet was originally launched as a web-based flashcard program to help language students learn vocabulary. However, it has also become popular among students of all subjects.

5. Conclusion

6. The results imply that the integration of AnkiApp is successful in boosting students' vocabulary skills. The data analysis from MTs DDI Taqwa Parepare shows clear disparities in students' vocabulary score before and after implementing the AnkiApp intervention. On average, the pre-test scores were 26.6, but

the post-test scores experienced a significant increase to an average of 68.4. Additionally, at a significance level of 0.05, the t-test value of 9.41 surpasses the critical t-table value of 2.145, with 14 degrees of freedom (df). As a result, the null hypothesis (H0) is disproven, and the alternative hypothesis (Ha) is validated. This confirms that the implementation of AnkiApp as a learning tool effectively enhances students' vocabulary mastery.

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