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# The Effect of Using Digital Flashcards on English Vocabulary Mastery at Seventh Grade Students of SMPN 17 Mataram

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**Abstract:** This study aimed to determine whether there is a significant effect of using digital flashcards vocabulary mastery in grade VII students of SMPN 17 Mataram. Researchers conducted quantitative research using a quasi-experimental method with a quasi-experimental design that is nonequivalent to a control group design. The subjects of this study were 60 seventh-grade students in Smpn 17 Mataram with class VIIA (experimental class) and VIIE (control class). Data collection was carried out using vocabulary tests, namely pretest and posttest. The Test consists of 25 questions. In using digital flashcards, the average value of the pretest in the experimental class is 55.40, while the average value of the posttest is 76.27. At the same time, students who do not use the media slightly increased from 53.00 on the pre-test to 60.73 on the post-test. The normality test used is the Kolmogorov-Smirnov Test , which shows the normal distribution of data. Based on data analysis using independent sample t-test on SPSS version 26. The significance test result is 0.001, which is smaller than the significance level of 0.05. It can be concluded that students who are taught by using digital flashcards as a medium of teaching materials are better than students who do not use any media.

**Keywords:** Digital Flashcards, vocabulary mastery

## INTRODUCTION

Vocabulary is the basic word important in language acquisition and development to communicate fluently, especially in English. According to Siso et al.(2023), One of the language sets that must be acquired is vocabulary, which supports the four abilities of listening, speaking, writing, and reading. According to Harmer (2002), vocabulary is one of the most essential language sets and the first applied linguist. The central premise of the above statement is that mastering vocabulary is required before learning a language. Vocabulary is a collection of words in the language being studied. For example, there are nouns, verbs, adjectives, and adverbs in English (Wahyudi et al.,2021).

In foreign language learning, mainly English, several approaches, tactics, or procedures have been devised to increase learners' knowledge of English vocabulary, one of which is using flashcards. Flash cards can help students learn English vocabulary more efficiently (Farmasari et al., 2021). According to Cross (1991), a flashcard is a basic graphic on a piece of card used as a visual aid throughout the teaching and learning process. It indicates that digital flashcards are one educational medium that may assist teachers in teaching vocabulary effectively.

Based on the preliminary observations conducted at SMPN 17 Mataram, the English teachers at SMPN 17 Mataram said that seventh-grade students still lack teachers at SMPN 17 Mataram said that seventh-grade students still lack vocabulary, and As a result of the restricted vocabulary used in media, acquiring English becomes harder. In addition, kids struggle to grasp the language. Students often make mistakes when answering questions and cannot translate questions. According to the English teacher of class VIIA, the students at school have limited vocabulary related to the scope especially in the home environment, which is why learning focuses on target nouns related to the home

environment. The researcher opted to concentrate on noun vocabulary at the junior high school level since the researched content focuses on nouns, which are essential sentence parts that assist students in building simple sentences and improving their communication abilities. By mastering nouns, students can more easily learn other words, such as adjectives and verbs, and communicate more effectively in English. As Lail (2019) mentioned, media helps students explain and understand objects and materials in the learning process. Everyone should be aware of the problems students face and look for resources that can help students improve their vocabulary, because as the researcher found, teachers do not have strategies to teach vocabulary to students.

So, digital flashcards are pictures containing words and phrases created utilizing technology such as computers and smartphones, making it easier for kids to build technology-based learning and acquire new vocabulary. Therefore, this study uses Anki as digital flashcards, easily improve students` mastery of new vocabulary and grammar, which can be used on smartphones and PCs. Most, because this tool can improve students` mastery of new vocabulary and grammar easily, which can be used on smartphones and PCs, and most importantly, it can attract students' attention. Students will be more interested in learning vocabulary because they can see the colorful pictures in the digital flashcards. Thus, it can be concluded that digital flashcards can be used as a way of nonverbal communication that makes students less bored in learning and helps them remember words quickly.

## METHOD

In this study, researchers used a quasi-experimental approach to perform quantitative research. quasi-experimental approach. A nonequivalent control group design is an example of a quasi-experimental design. In this approach, researchers utilize two groups, the experimental and control group, which are not randomly assigned. The two groups will get a pretest treatment followed by a posttest. As a result, researchers picked VII A as the experimental class and VII E as the control class. Researchers will deliver treatment in the experimental class by employing digital flashcards in the form of Anki flashcard apps as a learning medium. The control class receives the same treatment as before but without using digital flashcards. While the control class is treated as normal without digital flashcards. This research design is illustrated as follows:

Table 1. The Test Illustration of Quasi-Experimental Research Design
The design can be described as follows:

| Non-equivalent Group Design | Class | Pre-test | Treatment | Post-test |
|---|---|---|---|---|
| Pre-Design | A | O1 | X | 02 |
| Post Design | E | O3 | X | O4 |

Notes:
A: The experimental class
E: the control class
O1: Pre-test Experimental class
O2: Post-test Experimental class
O3: Pre-test Control group
O4: Post-test Control group

The population in this study is seventh-grade students (VII) SMPN 17 Mataram. There are five (5) classes of Class VII students, namely Class VII A with 30 students (18 men and 12 women), Class VII B with 37 students (23 men and 14 women), Class VII C with 38 students (22 men and 16 women), Class VII D with 40 students (23 men and 17 women), Class VII E with 30 (18 men and 12 women). The number of students in Class VII at SMPN 17 Mataram is 175. For this study, researchers selected classes VII A and VII E from the current population. Class VII E was chosen as the control class, and VII A was selected as the experimental class.

### Instrument

Researchers used one type of instrument to collect data in this study: a vocabulary test. This test was used to measure the effect of using digital flashcards on students' vocabulary before and after treatment. The vocabulary tests used were pre-test and post-test.

### 1. Pretest

The instrument used in this pretest stage is a test question sheet consisting of 25 items. 15

multiple choice questions and ten answer questions and fill in the blanks. The test questions asked are nouns at home, both inside and outside. this test aims to increase students` vocabulary, help them make simple sentences, and improve their communication. By mastering nouns, students are able to understand other words such as adjectives and verbs and can convey ideas in English.

**2. Treatment**

In this study, learning occurred five times, lasting 60 minutes each time. Researchers conducted the learning process in class VII A for five sessions after creating the lessons and learning materials. The first meeting started with a pre-test, and in the second, third, fourth, and fifth meetings, the information was presented before the post-test. These pre- and post-tests will serve as a gauge to ascertain the class average and the proportion of students who have mastered the used learning strategy. In this study, Anki Flashcards were used as a vocabulary-learning tool for students. Anki is a Spaced Repetition System (SRS) based application designed to help students memorize new vocabulary. It is available on multple platforms, including laptops, computers, and smartphones, making it easy for students` to learn anytime and anywhere. Anki Flashcards help students translate and understand different parts of speech, such as common nouns. Each flashcard can include definitions, synonyms, antonyms, example sentences, and relevant images, thus enriching vocabulary learning.

**3. Post-test**

At the last meeting, students were asked to do a post-test. This test consisted of 25 items. 15 items were multiple choice. The rest, ten items fill in the blanks. This test contains the same questions as the prettest questions only different in the previous question number. This test aims to find out that students have improved in vocabulary mastery after using digital flashcards and find out if there is an increase in the value obtained from the previous value.

**Data Collection Method**

The data-gathering technique is one of the procedures for obtaining data values. The data for this study comes from 60 students in grades VII A and VII E. The meeting was conducted five times. At the first meeting, students were given a manual pretest. Researchers performed a test to assess students' vocabulary competence that focused on nouns. The Pretest was administered before treatment to determine the pupils' starting ability. The goal of this pretest is to determine the student's existing understanding of vocabulary, namely nouns. A pretest is given to students before using a digital flashcard in the form of an Anki flashcard application. Students are given 25 questions consisting of 15 multiple-choice questions and 10 Questions. Students of Class VII A and Class VII E are given 68 minutes at 7.30-8.30 Wita to answer all questions. The researcher corrected the students` answer sheet to find out the pretest results for each student. The results will then be compared to those from the post-test, which will be performed following treatment. At the end of the exam, the researcher instructed pupils to bring cell phones as learning tools.

In the second, third, and fourth meetings, researchers gave treatment in the form of introducing digital flashcards used for learning related to the material taught to students using Anki flashcards. The treatment was conducted 3 times for 60 minutes. In this study, the treatment is a pedagogical approach that aims to improve students' vocabulary knowledge. In this treatment, students in the experimental group will use digital flashcards as learning media. The researcher will convey that learning is done digitally by using the Anki Flashcard application. Then, the researcher asked students to take out their cellphones and open the Play Store to download the application. And after downloading, students were directed to register by email. Next, the researcher provided a link to enter the study group in the application. Afterwards, the researcher explained the material that was the focus of student learning at the next meeting. The researcher began teaching about the material selected from the English book. The material discussed was noun vocabulary in chapter 3. Students were asked to find nouns for 20 minutes in the chapter and write them in the book. Furthermore, the researcher will direct

students to use cell phones as a learning media tool. The researcher will teach like the previous meeting, where the mobile phone is used to learn and train students' mastery ability in remembering and memorizing the vocabulary that has been learned.

In the fifth meeting, students were given a posttest manually to compare the scores obtained in the previous pretest. At this stage, students will be given several questions similar to the pretest. Students are given the test manually, and the time limit is 60 minutes, which contains 25 questions. The test was conducted in class VIIA and class VII E at 8.00 - 9.00 Wita. After the students' post-test results were collected, the researcher calculated and compared them with their pre-test results at the first meeting. The students in the control group were taught vocabulary on a whiteboard. The researcher scribbled several vocabulary word on the whiteboard. The researcher then uttered the term to the pupils. The pupils then repeated it until they correctly said it. At the end of the conference, students were given a vocabulary posttest to determine how well they fared on the vocabulary test.

**Data analysis**

In this study, researchers generated numerical data using statistical approaches. The independent sample T-test is used to compare the values of pretest and post-test students to evaluate if there are significant differences in the usage of digital flashcards in the form of Anki flashcards in enhancing the vocabulary of students in Class VII A as an experimental class at Smpn 17 Mataram. Before using the T-test, the researchers verified the data's normality and homogeneity. It is used to determine if the given data is normal or not, as well as homogenous. Normality and homogeneity tests were done using IBM SPSS version 26 for Windows.

## FINDING AND DISCUSSION

This chapter presents the findings and discussion, in which the data is presented based on the discussions. The following part emphasizes the analysis and contains the relevance of the theory used in the data description.

Table 2. Statistics of Experimental class and Control Class results

| | Pre-Test Experimental | Post-Test Experimental | Pre-Test Control | Post-Test Control |
|---|---|---|---|---|
| **N** | 30 | 30 | 30 | 30 |
| **Mean** | 55.40 | 76.27 | 53.00 | 60.73 |
| **Std.Error** | 1.875 | 1.811 | 1.775 | 1.468 |
| **lower bound** | 51.57 | 72.56 | 49.37 | 57.73 |
| **Upper Bound** | 59.23 | 79.56 | 56.63 | 63.74 |
| **5% Trimmed Mean** | 56.93 | 76.30 | 53.37 | 60.52 |
| **Median** | 56.00 | 78.00 | 52.00 | 60.00 |
| **Variance** | 105.421 | 98.409 | 94.552 | 64.685 |
| **Std. Deviation** | 10.267 | 9.920 | 9.724 | 8.043 |
| **Minimum** | 24 | 56 | 24 | 48 |
| **maximum** | 72 | 96 | 70 | 78 |
| **Range** | 48 | 40 | 46 | 30 |
| **Interquartile Range** | 14 | 13 | 13 | 14 |
| **Skewness** | -729 | -258 | -522 | -200 |
| **kurtosis** | 1.682 | -353 | 1.376 | -777 |

This table provides the average value of the pretest and posttest based on the experimental class and control determined below.

- Pretest group 1 (experimental class): the average pretest score is 55.40, with a standard deviation 10.267. the score range is 24 to 72.
- Pretest group 2(control class): the average pretest score was 53.00, with a standard deviation 9.724. the score range is 24 to 70.
- Posttest group 1(experimental class): the average posttest score was 76.27, with a standard deviation 9.920. the score range is 56 to 96.

- Posttest group 2(control class): the average posttest score was 60.73, with a standard deviation 8.043 the score range is 48 to 78.

Table 3. Test of Normality

| Class | Kolmogorov-Smirnov[a] | | |
|---|---|---|---|
| | Statistic | df | Sig. |
| Pretest Experimental | .104 | 30 | .200* |
| Posttest Experimental | .156 | 30 | .061 |
| Pretest Control | .096 | 30 | .200* |
| Posttest Control | .103 | 30 | .200* |

The table above displays the data from the experimental and control classes, as well as the students` pretest and posttest outcomes. Because of the p-value, the kolmogorov-Smirnov Test with a normal distribution was employed. The Kolmogorov-Smirnov test yields results larger than 0.05.

Table 4. Independent sample T-test

| Results | Equal variances assumed | | Equal variances not assumed | |
|---|---|---|---|---|
| Levene's Test for Equality of Variances | F | 3.258 | F | - |
| | Sig | .076 | Sig | - |
| t-test for Equality of Means | t | 6.321 | t | 6.321 |
| | df | 58 | df | 50.712 |
| Significance one-sided two-sided | p | <,001 | p | <,001 |
| | p | <,001 | p | <,001 |
| Mean difference | | 13.13333 | | |
| Std. error difference | | 13.13333 | | |
| 95% confidence interval of the difference | lower | 8.97454 | lower | 8.96178 |
| | upper | 17.29213 | upper | 17.30489 |

The table above shows that the independent sample t-test conducted on the post-test resulted in a two-sided p-value of <0.001. The p-value of <0.001 rejects the null hypothesis and accepts the alternative hypothesis, as it is less than 0.05. This means that using digital flashcards has a major impact on improving pupils' vocabulary. Digital flashcards not only provide a fascinating pastime, but also improve students' drive to study in an engaging and non-boring manner. The average post-test result in the experimental class was 76.27, which is higher than the average pre-test score of 55.40.

**Discussion**

This study aims is to investigate the influence of digital flashcards on English vocabulary learning among seventh-grade students at SMPN 17 Mataram. Pre- and post-test scores revealed that the experimental group, which utilized digital flashcards, improved significantly in vocabulary acquisition compared to the control group, which employed traditional learning methods.The experimental group's mean score went from 55.40 in the pre-test to 76.27 in the post-test, but the control group's mean score climbed only from 53.00 to 60.73. The t-test findings revealed a t-value of 6.321 with a significance level of 0.001 (less than 0.05), showing a statistically significant difference between the two groups. This demonstrates that digital flashcards are useful for enhancing English vocabulary learning among seventh-grade students.

The findings of this study indicate a positive link that supports the hypothesis of technology-based learning, which claims that the usage of digital tools can improve learning effectiveness. As discovered in earlier research on the efficacy of utilizing digital flashcards to

boost students' English vocabulary. Nender et al. (2022) conducted research on enhancing pupils' vocabulary with the use of Anki flashcards (case study at Berea Tondano Junior High). The findings show the use of Anki flashcard app as an additional medium of learning. This application encourages students to memorize enough words and master vocabulary for a long time, because Anki Flashcards are not only in the form of pictures but can also be a vedio. In addition, research was conducted by Emilia, Silaen, Manurung (2024), and Manurung (2024) on enhancing students' vocabulary mastery using quiz applications in junior high schools. This study uses the CAR method which seeks to enhance and strengthen vocabulary and create a fun learning atmosphere. Similarly, research conducted by Yulsardi and Ratmanida (2021) on the effect of digital flashcards on students' vocabulary mastery: experimental research at smpn 12 padang. This study aims to determine whether digital flashcards are effective in increasing student vocabulary or not. The digital flashcard used is the Quizlet application. This is in line with Ni`mah`s research (2023) on the effectiveness of using the quizlet application as a digital flashcard in motivating grade XI students to learn vocabulary. Both of these studies focus using Quizlet apps as a learning medium to increase student motivation when learning vocabulary. This will pique pupils' attention, prevent boredom, and increase their enthusiasm for studying words.

Furthermore, this study's technique is quantitative, employing a quasi-experimental design, as opposed to Emilia, and Manurung`s (2024) qualitative approach uses class action research (CAR). This shows that different approaches can provide complementary results but sometimes produce different interpretations. The CAR approach explored richer details about the participants' experiences, which may not have been fully expressed in this quantitative research. Overall, the findings of this study provide theoretical support for previous research focusing on the use of digital flashcards in vocabulary acquisition. Additionally, this study introduces an interesting and fun application to encourage students to memorize enough words and master vocabulary for a long time, because Anki Flashcards are not only pictures but also videos.

## CONCLUSION

Based on the data analysis results from the previous chapter demonstrate that the usage of digital flashcards impact on student vocabulary in class VII Smpn 17 Mataram. Digital flashcards succeed in making the classroom situation they are enjoyable and active. After all, in this modern era, students prefer to learn using electronic devices such as cell phones, laptops, and computers. This makes student learning fun in class. According to the results, the average post-test score of students in the experimental class is greater than that of the control class. The average result for the experimental class was 76.27, whereas the control class was 60.73. The data was evaluated using a T-test to measure the effectiveness of digital flashcards in vocabulary acquisition. The significant value of 0.001, below 0.05 or (2-tailed) <0.05, indicates that using digital flashcards to improve students' vocabulary has a substantial impact. The above assertions indicate the rejection of the hypothesis (H0) and acceptance of the hypothesis (H1), indicating that digital flashcards are efficient in teaching English to students in grade VII Smpn 17 Mataram.

This study demonstrates a substantial increase in the influence of digital flashcards on English vocabulary mastering in seventh-grade students at Smpn 17 Mataram. Researchers interested in the use of digital flashcards using Ankin flashcards should pay attention to the desired conditions, such as tailoring learning materials to the level of subject ability, creating a conducive learning environment, and being accompanied by competent teachers/educators. In this study, researchers used the Anki flashcard digital flashcard application. This application is easy to use and has many features to create flashcards. By using Anki flashcards, researchers can develop digital flashcards that may be more in line with students' needs. However, Anki Flashcards also provides ready-made digital flashcards. In addition, Anki provides several learning mode options. Teachers, especially English teachers, are expected to repeat the flashcard method, which is more fun for students and motivates them to learn. Teachers should also be more innovative in their media selection so pupils are not bored with repetitive learning. Suggestions for pupils include getting acclimated

to utilizing English vocabulary taught at school and home so that youngsters are more easily interested in learning to use electronic media such as mobile phones, computers, and laptops. The application that has been used allows students to study anywhere with interesting, engaging flashcards.

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