

# The Use of Electronic Flashcards: Enhancing Vocabulary Mastery Through Classroom Action Research

Uswatun Hasanah<sup>1</sup>, Anita<sup>2</sup>, Fadila Oktaviana<sup>3</sup>, Dini Fitriani<sup>4</sup>  
UIN Sultan Maulana Hasanuddin Banten, Indonesia<sup>1</sup>

Corresponding email: [222623106.uswatun@uinbanten.ac.id](mailto:222623106.uswatun@uinbanten.ac.id)

Received: 4 January 2025    Reviewed: 6 January 2025    Accepted: 2025

**Abstract:** Vocabulary mastery is a critical component of language learning, yet many students struggle with acquiring and retaining new words effectively. This study examines the use of electronic flashcards as a tool to enhance vocabulary mastery through classroom action research in a secondary-level English classroom, following a cyclical process of planning, implementation, observation, and reflection, with data collected through tests, observations, and student feedback to evaluate their effectiveness. The findings indicate that electronic flashcards significantly enhance students' vocabulary retention, recall, and motivation compared to traditional methods, with multimedia elements and interactive features contributing to an engaging learning environment. This study underscores the potential of technology-based tools in addressing challenges in vocabulary learning and highlights the importance of adopting innovative strategies to foster dynamic and effective teaching practices in language education. Thirty-two IX-G students at SMPN 5 Serang City participated in this research. Classroom action research was carried out in two cycles. Pre-test and post-test, questionnaires, along with interviews were used to collect data. The findings show that students succeeded in passing classical completeness by 62.5% in the pre-test, 78.1% in the post-test cycle 1, and 93.75% in the post-test cycle 2. Using electronic flashcards makes student easier to remember vocabulary, add new words, understand definitions and synonyms. It can be concluded that the use of electronic flash cards can help students become more proficient in vocabulary.

**Keywords:** classroom action research, electronic flashcard, vocabulary

**Abstrak:** Penguasaan kosakata merupakan komponen penting dalam pembelajaran bahasa, namun banyak siswa yang mengalami kesulitan dalam memperoleh dan mengingat kata-kata baru secara efektif; penelitian ini meneliti penggunaan kartu flash elektronik sebagai alat untuk meningkatkan penguasaan kosakata melalui penelitian tindakan kelas di ruang kelas bahasa Inggris tingkat menengah, mengikuti proses siklus perencanaan, pelaksanaan, observasi, dan refleksi, dengan data yang dikumpulkan melalui tes, pengamatan, dan umpan balik siswa untuk mengevaluasi keefektifannya. Temuan menunjukkan bahwa kartu flash elektronik secara signifikan meningkatkan retensi kosakata, daya ingat, dan motivasi siswa dibandingkan dengan metode tradisional, dengan elemen multimedia dan fitur interaktif yang berkontribusi pada lingkungan belajar yang menarik. Penelitian ini menggarisbawahi potensi alat berbasis teknologi dalam mengatasi tantangan dalam pembelajaran kosakata dan menyoroti pentingnya mengadopsi strategi inovatif untuk mendorong praktik pengajaran yang dinamis dan efektif dalam pendidikan bahasa. Tiga puluh dua siswa kelas IX-G di SMPN 5 Kota Serang berpartisipasi dalam penelitian ini. Penelitian tindakan kelas dilakukan dalam dua siklus. Pre-test dan post-test, kuesioner, serta wawancara digunakan untuk mengumpulkan data. Hasil penelitian menunjukkan bahwa siswa berhasil melewati ketuntasan klasikal sebesar 62,5% pada pre-test, 78,1% pada post-test siklus 1, dan 93,75% pada post-test siklus 2. Penggunaan kartu flash elektronik membuat siswa lebih mudah mengingat kosakata, menambahkan kata-kata baru, memahami definisi dan sinonim. Dapat disimpulkan bahwa penggunaan kartu flash elektronik dapat membantu siswa menjadi lebih mahir dalam kosakata.

**Kata kunci:** penelitian tindakan kelas, kartu flash elektronik, kosakata

## 1. INTRODUCTION

Vocabulary mastery is needed to master the four language skills including speaking, listening, reading and writing. Language usage leads to an increase in vocabulary knowledge, and vocabulary knowledge facilitates language use in learners (Nation, 2022). According to Hiebert and Kamil in Rumaisyah et al. (2023), vocabulary is the comprehension of word meanings that people use to communicate what they think and gain knowledge about new concepts. Additionally, Schmitt and Schmitt (2020) describe vocabulary as terms that can be applied to a range of topics and situations in writing and speaking. Having a good vocabulary entail understanding word definitions, usage, construction, and grammar (Harmer, 2015). With a large vocabulary, students will be able to understand what they read, listen to others, respond, speak clearly, and write about a variety of subjects (Hamer as cited in Munikasari et al., 2021). It can be said that vocabulary plays an important role in language learning.

Considering the importance of vocabulary mastery in language learning, the fact is that there are still many students in schools who lack vocabulary. The researcher discovered that students in grade IX-G at SMPN 5 Kota Serang had trouble with English based on the pre-test, the results of the vocabulary exam indicated that 62,5% of the students, or 20 students, had achieved the minimum completion requirement of 75. A total of 12 students, or 37,5%, received a score of less than 75. Also, the researcher was conducted the observation when teaching at SMPN 5 Kota Serang where the researcher was a

teacher at the school. Apart from that, the researchers also asked other English teachers to teach in class IX-G twice and asked how the students responded regarding learning English. The result is they do not understand instructions and explanations in English well.

Researchers found that students lacked vocabulary skills. It is difficult for them to understand when teachers use English to explain material and give instructions on assignments. Some students cannot understand the meaning of words. In addition to misspellings of terms, they also have difficulty understanding definitions, synonyms, and sentence structure. They believe that English is a difficult subject because it is not their first language, and many students only take English classes in junior high school. The limited time given to teaching English in schools and the lack of media in presenting material, such as still using a traditional media are also other problems.

The importance of using modern media along with technological advances to make learning fun. The development of ICT changes the point of view of the vocabulary learning system from conventional to a digital learning system where educators and students are required to have ICT skills that are good enough to be used in the teaching and learning process so that they can enhance the quality and effectiveness of achieving the learning objectives that have been set (Al-Arif, 2020). As stated by Cross in Matrutry and Que (2021), a flashcard is a simple visual aid on a piece of paper that is utilized to enhance the visual aspect of teaching and learning. Flashcards can be used for several games, word order practice, and vocabulary consolidation (Haycraft in Laila, 2019). Flashcard has two sides:

definitions or explanations are on the back, while images or symbols are on the front. This shows that flashcards are an effective teaching medium.

Electronic flashcards have many benefits. It has been demonstrated that using flashcards along with growth technologies can help EFL students acquire vocabulary and enhance their memory recall (Alghamdi & Elyas, 2020). Students' retention may be enhanced by the images on flashcards since visual aids have a stronger memory and comprehension impact.

Compared to actual phrases, pictures on electronic flashcards have visual, audio-visual, and kinesthetic mediums for students to engage in learning more actively and with more enthusiasm (Lubis et al., 2022). When compared to traditional flashcards, the relative effectiveness of electronic flashcards is more substantial (Xodabande et al., 2023). Teachers do not need to print cards on paper, they can make electronic flashcards faster, and they are durable and easy to store. Therefore, this research uses electronic flashcards to enhance students' vocabulary.

The use of electronic flashcards has been the topic of several studies. At a private language school for students in Iran, Rahmani et al. (2022) studied experimental research how using digital flashcards (DFs) for mobile-assisted vocabulary learning affected students' acquisition of high-frequency word knowledge. The study demonstrated that using DFs to acquire vocabulary outside of the classroom was a successful way to increase one's understanding of essential words in English. Furthermore, according to experimental research by Luthfillah and Fauzia (2023) on the 7th grade Public School in Gresik, a junior high school student's speaking

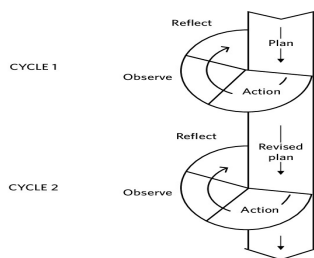
skills can be enhanced with the use of digital flashcards. Additionally, a qualitative study was carried out by Apriliani and Suryaman (2021) to determine how students' perception about utilizing electronic flashcards to acquire vocabulary in English. The findings demonstrate that electronic flashcards are a useful tool for providing students with an engaging vocabulary education and increasing their enthusiasm for learning English vocabulary.

In contrast to previous research, this research uses the Classroom Action Research (CAR) method to examine the impact of electronic flashcards in improving students' vocabulary mastery. The reason researcher was used this method is to enhance and increase the quality of learning and help empower teachers in solving learning problems in schools. The researcher was assumed through the utilization of electronic flashcards as a learning medium for educators, students can enhance their vocabulary mastery. The following research question in this study is whether the use of electronic flashcards helps students in improving vocabulary.

## **2. RESEARCH METHODOLOGY**

This study employed Classroom Action Research (CAR), a systematic method to identify and address classroom challenges through iterative cycles of planning, acting, observing, and reflecting, as outlined by Kemmis and McTaggart (Sugiyono, 2019). During the planning stage, researchers observed and analyzed pre-test results to identify the vocabulary learning difficulties experienced by Grade IX-G students at SMPN 5 Serang. In the

implementation stage, they utilized electronic flashcards as a teaching tool, incorporating visuals and synonyms to improve students' ability to retain new vocabulary. The observing phase involved monitoring student engagement and performance using observation sheets, questionnaires, and interviews, while the reflecting phase analyzed the outcomes to refine teaching strategies for subsequent cycles. In addition to addressing learning difficulties, this methodical approach made sure that teaching strategies and learning objectives were continuously improved.



**Picture 1.1** Kemmis and McTaggart's framework (Sugiyono, 2019)

The research was carried out at IX-G SMPN 5 Serang City with a sample of 32 students. The reason the researcher chose this class was that although this class had more experience learning English, its vocabulary was still limited. The research was conducted in September 2023.

Observations, tests, questionnaires, interviews in class are the types of instruments used in this research. In pre-research, researchers used the form of observation, pre-test, and interview with other English teachers who were asked to teach classes IX-G twice to find the problem. The observation sheet contained information on the students' participation,

interactions, skills, behavior, and performances during the learning process. The post-test is given after acting is carried out in each cycle. There were 20 vocabulary questions total for the pre- and post-tests, 10 of which were multiple choice and 10 of which were fill in the blanks. Next, the questionnaire and interview to students were used to collect information about students' perspectives and experiences.

To analysis the data, the researcher use the quantitative analysis to find the successful percentage in research and percentage in questionnaire is as follows (Sugiyono, 2019):

$$P = \frac{F}{N} \times 100$$

In which:

- $F$  = The number of students who passed the kkm or the number of students who strongly agree/agree/disagree/strongly disagree
- $N$  = The total number of students
- $P$  = Percentage figure (%)

A Likert scale approach is used for statements or questions. Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) are the four potential answers that are available on this scale. The Likert Scale's weighted assessment of positive and negative perceptions is as follows (Sugiyono, 2019). Analyzing the interview using qualitative descriptive, in the form of data reduction, data display, and data conclusion.

## 2.1 Indicators of Research Success

To consider the students successful in mastering vocabulary, they should achieve a score of 75 or higher, as this is the minimum

mastery learning score required for the English course at SMPN 5 Kota Serang based on 2013 curriculum. Success in this research is if there is a change or enhancement for the better. Sudijono (2015) states that data is interpreted into 5 levels, namely:

- a. The criteria are very good, namely if the score obtained by the student is between 90% - 100%.
- b. Good criteria, namely if the score obtained by the student is between 80% - 89%.
- c. The criteria are sufficient, namely if the score obtained by the student is between 75% - 79%.
- d. Criteria are not good, namely if the score obtained by the child is between 60-74%.
- e. Criteria are very not good, namely if the score obtained by the child is between <60%.

The indicator of success in this research is an increase in students' vocabulary mastery using electronic flashcards. This research can be declared successful if the average percentage of students' vocabulary understanding has reached 90-100%. The success of each action can be determined by comparing the results of activities from each cycle carried out in learning activities.

### 3. RESULTS

The 4 researchers found several findings in the study data obtained from testing (pre-test and post-test), questionnaire, and interview that might address the research topic stated in the introduction. The researcher divided the explanation into three sections: enhancing students' vocabulary knowledge, utilizing

electronic flashcards for vocabulary learning, and boosting students' motivation.

#### 3.1 Enhancement of The Students' Vocabulary Mastery by Using Electronic Flashcard

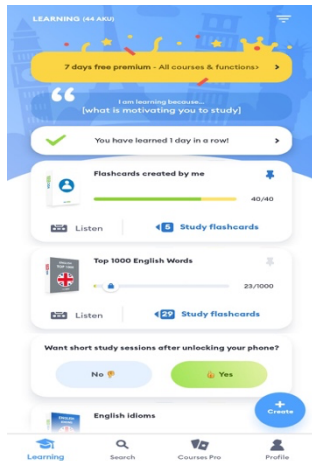
The results of the pre-and post-tests cycles 1 and 2 showed that using electronic flashcards enhanced students' vocabulary proficiency. The

**Table 3.1. Learning outcomes before CAR was carried out**

| No.           | Value Interval | Category      | Amount    |
|---------------|----------------|---------------|-----------|
| 1.            | 90 – 100       | Very Good     | -         |
| 2.            | 80 – 89        | Good          | 8         |
| 3.            | 75 – 79        | Sufficient    | 12        |
| 4.            | 60 – 74        | Not Good      | 5         |
| 5.            | <60            | Very Not Good | 7         |
| <b>Amount</b> |                |               | <b>32</b> |

|                        |              |
|------------------------|--------------|
| Class average          | 66,6         |
| Category Individual    | Not Good     |
| Completeness Classical | 20 students  |
| Completeness Category  | 62,5%        |
|                        | Not Complete |

Table 1 shows that the students' pre-test average in classical completeness is 66.6 with a percentage of 62.5%. Before utilizing the electronic flashcards, the students completed a pre-test, yielding unsatisfactory results. Therefore, one could say that students have a limited vocabulary. The researchers used electronic flashcards to help students with their restricted vocabulary.



**Picture 3.1 Electronic flashcard display in the VocaApp EN application**



**Picture 3.2 Electronic flashcard display (Card A and Card B)**

When implementing electronic flashcards, students are divided into nine groups of four people. The students were then shown 20 cards at random. Card set A consists of 10 cards showing pictures and example sentences, as well as 10 cards with synonyms for the terms. The text on the electronic flashcards is taken from a song called “Who Says.” By Selena Gomez. Students must match card A which contains an image with card B which contains a synonym for card A.

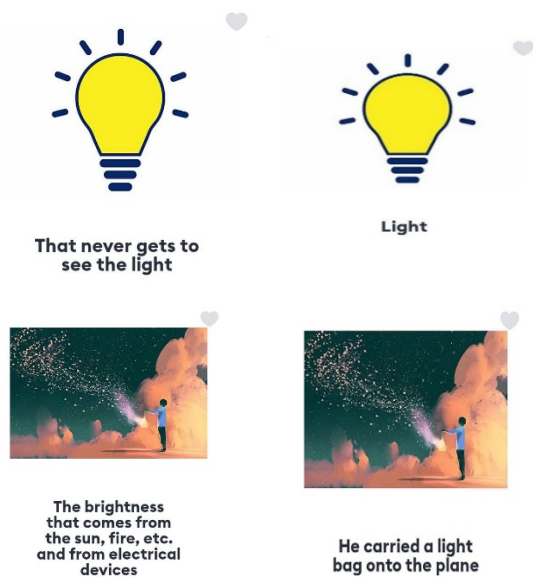
After that, each group is encouraged to help each other understand these terms. In each group, two students act as questioners and two students act as answerers. Two questioners are tasked with giving card A. The questioner observes the picture on card B which contains a synonym for the term. The questioner asks about the synonyms of the word, and the answerer is responsible for providing the answer. If the answerer is unsure of the answer, they can infer synonyms from the image. After completing 10 cards, the students exchanged roles. And lastly, the students were instructed to complete the posttest on their own.

**Table 3.2 Learning outcomes after CAR was carried out (Post-test Cycle 1)**

| No.                    | Value Interval | Category      | Amount   |
|------------------------|----------------|---------------|----------|
| 1.                     | 90 – 100       | Very Good     | 4        |
| 2.                     | 80 – 89        | Good          | 8        |
| 3.                     | 75 – 79        | Sufficient    | 13       |
| 4.                     | 60 – 74        | Not Good      | 7        |
| 5.                     | <60            | Very Not Good | 0        |
| Amount                 |                |               | 32       |
| Class average          |                |               | 78,75    |
| Category Individual    |                |               | 25       |
| Completeness Classical |                |               | students |
| Completeness           |                |               | 78,1%    |
| Category               |                |               | Complete |

In cycle 1, the researchers utilized electronic flashcards to cover the subject of music. Rahmani et al. (2022) study discovered that incorporating images on digital flashcards aided students in retaining and visualizing words. The post-test findings in table 2 indicate an increase in students’ scores from 62.5% to 78.1%. Using electronic flashcards proved effective in improving students' vocabulary proficiency and

was recommended as a method to enhance their vocabulary skills.



**Picture 3.3 Electronic flashcard display (Card C and Card D)**

The researchers conducted additional cycles to validate the efficacy of electronic flashcards in increasing students' vocabulary knowledge. The activities carried out in cycle 2 are the same as cycle 1. The difference is that students are given 2 sets of cards, namely card C and card D. Card C contains pictures and example sentences taken from a song entitled "Who Says." by Selena Gomez. Card D contains the definition of card C. After that, students are asked to take a post-test.

**Table 3.3 Learning outcomes after CAR was carried out (Post-test Cycle 2)**

| No.           | Value Interval | Category      | Amount |
|---------------|----------------|---------------|--------|
| 1.            | 90 – 100       | Very Good     | 8      |
| 2.            | 80 – 89        | Good          | 20     |
| 3.            | 75 – 79        | Sufficient    | 2      |
| 4.            | 60 – 74        | Not Good      | 2      |
| 5.            | <60            | Very Not Good | 0      |
| Amount        |                |               | 32     |
| Class average |                |               | 86,03  |
| Category      |                |               | Good   |

|                         |             |
|-------------------------|-------------|
| Individual Completeness | 30 students |
| Classical Completeness  | 93,75%      |
| Category                | Complete    |

The students' scores climbed from 78.1% to 93.75% based on the post-test results from cycle 2. This study showed that incorporating electronic flashcards into instruction was successful in enhancing students' vocabulary proficiency. Alghamdi and Elyas (2020) found electronic flashcards to be useful, valid, and valuable for improving vocabulary acquisition among students.

### 3.2 The Students' Response in Enhancing Vocabulary Mastery by Using Electronic Flashcards

According to the findings of the questionnaire and interview presented to students, employing electronic flashcards provided several benefits to students. The students responded positively to the usage of electronic flashcards. Table 4 presents a summary of the student's comments.

**Table 3.4 Students' Response in the Use of Flashcards**

Part A

The Use of Flashcards

| No. | Assessed Aspects  | Number of Students |   |        |        |
|-----|---|--------------------|---|--------|--------|
|     |   | S                  | D | A      | S      |
| 1   | Electronic flashcards make it easier to remember new vocabulary in English. |                    |   | 62,5%  | 37,5%  |
| 2   | Electronic flashcards   |                    |   | 56,25% | 43,75% |

|   |  |  |         |         |
|---|--|--|---------|---------|
|   | make it easier to understand the meaning of new vocabulary in English.                               |  |         |         |
| 3 | Electronic flashcards made it easier to understand synonyms of the new vocabulary discovered.        |  | 65,62 % | 34,37 % |
| 4 | Electronic flashcards made it easier to understand the definitions of the new vocabulary discovered. |  | 68,75 % | 31,25 % |
| 4 | Electronic flashcards made it easier to understand the definitions of the new vocabulary discovered. |  | 68,75 % | 31,25 % |
| 5 | Electronic flashcards enhanced the new vocabulary in English.  |  | 50%     | 50%     |

Table 4 presents the students' responses to the Part A questionnaire. 32 students filled out the survey, which included five assertions. The 32 children reacted positively to the use of electronic flashcards. Out of 32 students, 37,5% strongly agreed in the first statement, and 62,5% believed that electronic flashcards aided in retaining new English vocabulary. This is also linear to student interviews.

*"Through this electronic flashcard, I can learn and remember new vocabulary such as empress, hilarious, trust, gemstone, and others. Before, I had never known these words" (Redi, Interview, 2023)*

Electronic flashcards helped the students learn vocabulary. 43,75% out of 32 students strongly agreed and 56,25% out of 32 students agreed with the second statement, indicating that flashcards could aid in language acquisition. 34,375% out of 32 students strongly agreed, and 65,625% out of 32 students found that electronic flashcards facilitated their understanding of the synonyms in the new language. Students finished the homework promptly by matching words and pictures to their synonyms. Additionally, 31,25% out of 32 students strongly agreed, and 68,75% out of 32 students found that electronic flashcards facilitated their understanding of new vocabulary meanings, as indicated in the fourth statement. The students completed the work by immediately matching the words and pictures to their meanings, similar to the previous synonym challenge. Out of 32 students, 50% strongly agreed and 50% agreed that using electronic flashcards helped them acquire new English vocabulary. The students acquired a significant



amount of specialized vocabulary from the electronic flashcards utilized during their lessons. Several students said "Electronic flashcards allow us to know synonyms of vocabulary that we don't know yet, such as charming, believe, hesitate, and others. And through electronic flashcards we can also find out the definitions of a word."

According to Lubis et al. (2022), using electronic flashcards enhanced students language acquisition. Based on the questionnaire replies, it can be inferred that using electronic flashcards was beneficial for the students. This is line with Apriliani & Suryaman (2021) study.

### 3.3 The Enhancement of The Students' Motivation

After collecting data from the questionnaire and interview, the researcher discovered that employing electronic flashcards helped enhance students' enthusiasm. Table 5 shows that there has been an enhancement in student motivation.

**Table 3.5 The Enhancement of Students' Motivation**  
PART B  
Students' Motivation in Using Electronic Flashcards

| No | Assessed Aspects  | Number of Students |   |         |         |
|----|---|--------------------|---|---------|---------|
|    |   | S                  | D | A       | S       |
| 6  | I am happy in learning English.                             |                    |   | 50%     | 50%     |
| 7  | I am happy in learning English using electronic flashcards. |                    |   | 65,62 % | 34,37 % |
| 8  | I have more spirit  |                    |   | 68,75 % | 31,25 % |

|   |  |  |  |       |       |
|---|--|--|--|-------|-------|
|   | to learn new vocabulary when I learn English using electronic flashcards.                      |  |  |       |       |
| 9 | I am motivated to increase my new vocabulary when I learn English using electronic flashcards. |  |  | 62,5% | 37,5% |

Table 5 shows students' affirmative responses to the questionnaire for Part B. All students responded positively as none selected "strongly disagree" or "disagree." 32 students who filled out the questionnaire indicated that using electronic flashcards increased their motivation to study language by agreeing or strongly agreeing. The students also shared their views on their rationale for using electronic flashcards in the questionnaire. Initially, 50% out of 32 students strongly agreed, and the same number stated they enjoyed learning English. In addition, 34,37% out of 32 students highly agreed and 65,62% out of 32 agreed that they were satisfied with learning English using electronic flashcards in the second statement.

According to most students based on their interviews, electronic flashcards contain exciting pictures so that students do not get bored when learning vocabulary.

*"With the pictures on electronic flashcards, we don't feel bored when*

*learning vocabulary that is full of writing. Through these pictures, learning becomes interactive" (Hafidoh, Interview, 2023).*

The students found electronic flashcards helpful because they provided visual images that were easy to understand. Using electronic flashcards in the classroom helps prevent boredom, there by motivating students to finish the learning process. The students were enthusiastic about learning new vocabulary with electronic flashcards. The third statement's findings revealed that 31,25% out of 32 students strongly agreed and 68,75% out of 32 students agreed that using electronic flashcards to study English could enhance students' enthusiasm to learn new vocabulary.

The children were excited by the visually appealing electronic flashcard display, which made them feel like they were playing a game. Students experienced little tension throughout classroom instruction. Using electronic flashcards was akin to playing a game, which aided students in relaxing during study sessions. In the final statement, 37,5% out of 32 students strongly agreed, and 62,5% out of 32 agreed that they were motivated to enhance their vocabulary by using electronic flashcards while learning English. The learning process became less tedious and more entertaining. students believed students might acquire knowledge not only through the subject matter but also by participating in enjoyable activities.

*"We became very enthusiastic about learning new vocabulary through electronic flashcards. We had never studied using electronic flashcards before, so we were very enthusiastic." (Nazmi, Interview, 2023).*

They also lacked previous expertise in using electronic flashcards to learn a language. They were delighted and intrigued to learn the language as it was their initial experience with electronic flashcards. Following this, Rahmani et al. (2022) discovered that electronic flashcards were efficient in inspiring and engaging students.

#### 4. CONCLUSION

This study investigated how electronic flashcards can help students in enhancing their vocabulary understanding. The findings demonstrated that students benefit greatly from the researchers' use of electronic flashcards in vocabulary instruction. Electronic flashcards assisted the students in quickly grasping the meaning in addition to helping them recall the words. Students found that using electronic flashcards to learn the definitions and synonyms of the new vocabulary was very beneficial. Students could work on matching words and pictures to the appropriate definitions and synonyms directly.

When utilizing electronic flashcards, students are also very interested in learning vocabulary. The students want to utilize flashcards to learn language for a variety of reasons. The images on flashcards help students comprehend vocabulary more fully, which makes studying easier for them. In addition, the students find using electronic

flash cards to be interesting as it is an interactive media to learning that mimics playing games. Students may experience less stress because of this when studying English in class. These results imply that using electronic flashcards might help students become more proficient and interested in language. It also aids students in enhancing their vocabulary.

The findings of this study give students valuable new knowledge, such as that electronic flash cards are a helpful medium for enhancing vocabulary. This study also offers recommendations on how teachers might include electronic flashcards into their teaching strategies. The purpose of this study is to provide light on the possible advantages and disadvantages of electronic flash cards. Additionally, it is intended to offer helpful recommendations to teachers on how to make the most of using electronic flash cards to help students enhance their vocabulary.

Nevertheless, there is a limitation in this study data gathering method: information is only available to researchers based on students' pre- and post-test results, questionnaires, and interviews. To gather more thorough data, researchers suggest other research to provide questionnaires and interview to the English teachers who teach the sample classes and implement electronic flashcard media.

This study demonstrated that electronic flashcards efficiently increase vocabulary knowledge through increased improving recall, understanding, and motivation. While the findings are promising, the study is limited by its small sample size and short-term focus. Future research should involve larger, more diverse samples, explore long-term impacts, and investigate their use for other language skills. To maximize implementation, it's also important to look at teacher preparation and the viewpoints of larger stakeholders. Despite these limitations, electronic flashcards show great potential as an engaging and effective tool for vocabulary learning.

## REFERENCES

- Al-Arif, T. Z. Z. (2020). *Pembelajaran Bahasa Inggris dengan ICT*. Jambi: CV Salim Media Indonesia.
- Alghamdi, A. A., & Elyas, T. (2020). The Effect of Electronic Flashcards on EFL Students' Vocabulary Learning: The Case of Saudi Arabia. *Randwick International of Education and Linguistics Science Journal*, 1(2), 114–125.  
<https://doi.org/10.47175/rielsj.v1i2.79>
- Apriliani, D. N., & Suryaman, M. (2021). Students' Perception In Learning English Vocabulary Through Quizlet. *JET (Journal of English Teaching)*, 7(3), 343–353.  
<https://doi.org/10.33541/jet.v7i3.3064>
- Arikunto, S., Supardi, & Suhardjono. (2015). *Penelitian Tindakan Kelas*. Jakarta: Bumi Aksara.
- Arsyad, Azhar. (2016). *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada.

- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications, Inc.
- Harmer, J. (2015). *The Practice of English Language Teaching* (5th ed.). Pearson Education ESL.
- Indawati, N., Andariana, F. T. P., & Pristyoawti, D. (2022). IPS Learning on Natural Environmental Material and Artificial Environment Based on Contextual Teaching And Learning Through Interactive Comic Media. *Aksara: Jurnal Ilmu Pendidikan Nonformal*, 8(2), 1085. <https://doi.org/10.37905/aksara.8.2.1085-1092.2022>
- Laila, N. H. (2019). Improving Students' Vocabulary Mastery by Using Flashcards. *Mamba'ul 'Ulum*, 15(1), 46–52. <https://doi.org/10.54090/mu.29>
- Liando, N. V. F., Tatipang, D. P., Tamboto, G., Poluan, M., & Manuas, M. (2022). Pictures as a Learning Media in Teaching Vocabulary. *Jurnal Ilmiah Universitas Batanghari Jambi*, 22(3), 1944. <https://doi.org/10.33087/jiubj.v22i3.2832>
- Lubis, A. H., Johan, S. A., & Alessandro, R. V. (2022). Quizlet as an Electronic Flashcard to Assist Foreign Language Vocabulary Learning: A Systematic Literature Review (2016–2021). In N. Haristian, Y. Yulianeta, Y. Wirza, W. Gunawan, A. A. Danuwijaya, E. Kurniawan, D. Darmawangsa, S. Suharno, N. Nafisah, E. D. A. Imperiani, A. H. Lubis, B. Hermawan, & E. R. Fauzy (Eds.), *Proceedings of the Sixth International Conference on Language, Literature, Culture, and Education (ICOLLITE 2022)* (pp. 71–76). Atlantis Press SARL. [https://doi.org/10.2991/978-2-494069-91-6\\_12](https://doi.org/10.2991/978-2-494069-91-6_12)
- Luthfillah, D. A., & Fauzia, N. (2023). Using Digital Flashcards (DFs) as Learning Media to Enhance Students' Speaking Skill. *Journal of English Teaching, Literature, and Applied Linguistics*, 7(2), 39. <http://dx.doi.org/10.30587/jetlal.v7i2.5941>
- Matruty, E., & Que, S. R. (2021). Using Flashcard as A Media In Teaching Vocabulary For The Eighth Grade Students Of Junior High School. *MATAI: International Journal of Language Education*, 2(1), 25–34. <https://doi.org/10.30598/matail.v2i1.5490>
- Munikasari, M., Sudarsono, S., & Riyanti, D. (2021). The Effectiveness of Using Hangman Game to Strengthen Young Learners' Vocabulary. *Journal of English Education Program*, 2(1). <https://doi.org/10.26418/jeep.v2i1.43328>
- Nation, I. S. P. (2022). *Learning Vocabulary in Another Language* (3rd ed.). Cambridge: Cambridge University Press.
- Rahmani, A., Asadi, V., & Xodabande, I. (2022). Using Mobile Devices for Vocabulary Learning Outside the Classroom: Improving the English as Foreign Language Learners' Knowledge of High-Frequency Words. *Frontiers in Psychology*, 13, 899885. <https://doi.org/10.3389/fpsyg.2022.899885>
- Rumaisyah, A., Ishak, I., & Sultan, W. (2023). Enhancing Students' Vocabulary Knowledge Through Reading Thematic Story at SMPN 6 Watampone. *International Journal of Research on English Teaching and Applied Linguistics*, 4(1), 44–54. <https://doi.org/10.30863/ijretal.v4i1.5010>
- Schmitt, N., & Schmitt, D. (2020). *Vocabulary in Language Teaching* (2nd ed.). Cambridge University Press.
- Sudijono, A. (2015). *Pengantar Statistika Pendidikan*. Jakarta: PT. Raja Grafindo Persada.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.
- Xodabande, I., Asadi, V., & Valizadeh, M. (2023). Teaching vocabulary items in corpus-based wordlists to university students: Comparing the effectiveness of digital and paper-based flashcards. *Journal of China Computer-Assisted Language Learning*, 2(2), 257–280. <https://doi.org/10.1515/jccall-2022-0016>
- Sekarani (2023) Teachers' Strategies To Improve Students' Vocabulary In Efl Classroom (Case Study At SMP 27 Depok). (2023). *Jurnal ilmiah bina bahasa*, 16(2), 94-105. <https://doi.org/10.33557/binabahasa.v16i2.2637>