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THE EFFECT OF DIGITAL FLASHCARDS ON GRADE VII D STUDENTS' READING COMPREHENSION OF DESCRIPTIVE TEXTS

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ABSTRACT

This study aims to determine whether the use of digital flashcards significantly improves reading comprehension of descriptive texts in seventh-grade students at MTS Muslimat NU Palangka Raya. This study also addresses the hypothesis that there is a significant difference in students' reading comprehension improvement before and after treatment. Using a One-Group Pretest-Posttest pre-experimental design, this study involved a population of 115 students, with a sample of 25 students from grade VII-D selected through purposive sampling. The treatment was conducted over three sessions, focusing on vocabulary development and identifying generic structures in descriptive texts. Data were collected through a 20-item multiple-choice test. The results showed a significant improvement in student performance: the average pretest score was 58.50 (SD = 6.25), which increased to an average posttest score of 77.50 (SD = 5.40). Statistical analysis using a paired-sample t-test yielded $t(24) = 4.24$, $p < 0.001$, indicating that the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. These findings suggest that digital flashcards are an effective and innovative tool for improving reading comprehension. However, the lack of a control group and the specific geographic context limit the generalizability of these results. Future research should include larger sample sizes and true experimental designs to further validate these results.

Keywords: *Digital flashcard, reading skills, descriptive text, learning media, junior high school*

INTRODUCTION

English is one of the most widely spoken languages in the world, and plays a vital role as a primary tool for global communication and learning. In English language learning (EFL), having effective reading skills is one of the most fundamental competencies, because reading provides direct access to various sources of knowledge and helps develop vocabulary and other language skills (Isma & Nur, 2023). According to (Widodo et al. 2022) stated that However, many EFL students struggle with reading comprehension. One of the main factors hindering this is a lack of vocabulary mastery, which is one of the most significant inhibiting factors (Ayana et al., 2024). In addition, low motivation and interest in reading also impacts the lack of student participation in English learning.

In Indonesian high schools implementing the Independent Curriculum, many EFL students still struggle with reading comprehension. This difficulty is often related to limited vocabulary, lack of background knowledge, low motivation, and challenges in understanding text structure (Setiyorini et al., 2022). One of the learning achievements in the Independent Curriculum for grade VII high school students is mastery of various types of reading materials, especially descriptive texts. Descriptive texts, characterized by their detailed portrayal of a particular person, place, thing, or animal, require students to identify and articulate the characteristics, often focusing on physical appearance (Irnansyah et al., 2022; Dewi et al., 2021). Descriptive texts aims to help readers describe an object in detail. Yet, many students fail to master this text type due to a lack of interest in reading, failing to achieve reading comprehension and an inability to connect their background knowledge to the text (Kumbara et al., 2021). Despite being included in the curriculum, the learning process still largely relies on conventional, text-based methods, this approach underutilizes the potential of visual and multimedia media, which can accommodate the diversity of student learning styles.

Along with the development of educational technology, digital learning media has begun to be used to address these difficulties. One such medium is digital flashcards. Digital flashcards are interactive electronic learning tools that combine text and visual elements, often accompanied by

audio, to strengthen vocabulary mastery and comprehension of the material (Maronta et al., 2023). These digital resources, which can be adapted to various proficiency levels, have demonstrated significant efficacy in enhancing learning outcomes across different academic disciplines, including science education (Azahra et al., 2024; Oktavia et al., 2024; Wati & Mahendra, 2025). For example, (Hamida et al., 2023) report that, platforms like Quizlet, which provide game-based digital flashcards, can encourage student participation and motivation in learning English. According by (Santos-Ferreira et al., 2023) stated that, The multimedia elements and interactive features of digital flashcards are expected to make learning more engaging and accessible than traditional methods.

The use of digital flashcards is also theoretically supported. According to Paivio's Dual Coding Theory, information processed visually and verbally simultaneously is more easily remembered. Furthermore, Mayer's Multimedia Learning Theory and Sweller's Cognitive Load Theory state that material presented through a combination of words and images can reduce cognitive overload and strengthen comprehension. By utilizing the combination of text and visuals on flashcards, students are helped to develop a more comprehensive understanding of concepts and stronger memory retention.

Several previous studies have demonstrated the effectiveness of flashcards, particularly in vocabulary learning. For example, (Xodabande et al., 2022) reported that the use of digital flashcards significantly increased student engagement and academic vocabulary learning outcomes. (Suada et al.2025; Azahra et al., 2024) also found that students taught using digital flashcards achieved better reading comprehension scores than those taught using conventional methods. This enhanced efficacy is often attributed to the interactive nature and customizable features of digital flashcards, which facilitate repeated exposure and active retrieval, thereby deepening semantic encoding and retention (Boroughani et al., 2023).

However, most of these studies focused on vocabulary achievement or general academic contexts, and little research has been done on how digital flashcards can be applied specifically to improve reading comprehension in descriptive texts. Specifically, the effectiveness of digital flashcards in Indonesian high schools and their suitability to the demands of the Independent Curriculum remains underexplored (Hidayat et al., 2025). Based on this gap, this study aims to examine the effectiveness of using digital flashcards in improving students' reading comprehension of descriptive texts. The study was conducted at a high school implementing the Independent Curriculum, namely MTS Muslimat NU Palangka Raya, and used a one-group pre-test–post-test research design. This design allows researchers to observe changes in reading scores before and after treatment. However, it should be noted that one-group designs have weaknesses in terms of internal validity, because factors such as external events or natural changes in participants can influence the results of the study. Nevertheless, this study is expected to provide useful empirical evidence on how multimedia media is applied in teaching English reading. The results of this study are expected to enrich scientific references regarding innovative learning strategies that are relevant to the curriculum, while also offering practical contributions for English teachers in optimizing students' reading skills.

METHOD

This study used a quantitative method with a one-group pre-test and post-test design to measure students' reading comprehension improvement in descriptive texts. In this design, students are first given a pre-test to determine their initial ability in reading comprehension. After that, students were given learning treatment using innovative learning media in the form of digital flashcards during the learning process. After the treatment period was completed, students were given a post-test to evaluate their improvement in descriptive text comprehension (Amelia & Prystianantа, 2020). Despite these limitations, this design was chosen because the research was conducted in a natural classroom setting, where creating a separate control group was not possible due to institutional and time constraints. Therefore, this design allows researchers to observe changes in students' reading abilities before and after using digital flashcards in the same group. By collecting and comparing data from pre-test and post-test results, researchers can determine the extent to which students' reading comprehension abilities have improved after being given learning treatment.

This study targeted all seventh-grade students at MTS Muslimat NU Palangka Raya as the population, divided into six classes (VII A–F) with a total of approximately 115 students. Of these, 25 students in class VII D were selected using a convenience sampling technique. This selection was based on the researcher's accessibility to the subjects and an effort to maintain the authenticity of interactions in a natural classroom setting. Procedurally, students underwent a pre-test to assess their basic descriptive text reading skills.

The next step is involved administering a treatment using digital flashcards during the instructional process, culminating in a post-test. Comparison of the pre-test and post-test results served as the primary instrument for evaluating the effectiveness of the intervention.

The decision to select a single class was made based on practical administrative and technical constraints, such as limited research time and school policies that precluded the creation of a control group or the inclusion of additional classes. Therefore, class VII D was chosen as the most appropriate subject for in-depth testing of the effectiveness of this learning media. However, the researchers acknowledged significant methodological limitations. The use of convenience sampling and reliance on a single class inherently limits the representativeness of the sample, making the findings of this study not directly generalizable to the broader population of seventh-grade students. Furthermore, the potential for sampling bias cannot be ignored, given that class VII D may have unique characteristics that differ from other classes. Nevertheless, this sample selection is still considered valid and appropriate for exploring the potential of digital flashcards in improving comprehension of descriptive texts in a specific classroom context.

In this study will have 2 main instruments were used, namely: pre-test and post-test assessments, and Flash Cards. According to (Bernholt et al., 2022) stated that the pre-test and post-test assessments consisted of several multiple-choice questions, and short answer questions based on descriptive texts. These questions evaluated students' abilities in identifying main ideas, understanding vocabulary, and interpreting texts. In this regard, digital flashcards were also used exclusively and actively in the experimental group, as were flashcards containing key vocabulary, phrases, and questions related to descriptive texts (Khan, 2022). These digital flashcards are designed to make the learning process more interactive and interesting, and can help students actively participate in the learning process (Saputra et al., 2025).

In analyzing the data, this study used a pre-experimental method with one experimental group in one class. This study was conducted by implementing a pretest and posttest for a certain period of time to assess whether there was a significant effect between before and after being given digital flashcards media treatment on improving the reading comprehension of class VII D students of Mts Muslimat NU Palangka Raya. The study was conducted over 3 weeks or meetings. At Meeting 1, students took a pre-test to assess their ability to read descriptive texts. At Meetings 2, the focus was on learning sessions with flashcards media treatment, where students were actively involved in activities designed to improve an innovative and interactive classroom atmosphere, so that the learning atmosphere becomes fun and students are able to quickly master the material. At Meeting 3, a post-test was given to measure students' reading ability. For example, during the learning process about descriptive texts on the topic of animals, teachers can use flashcards containing pictures of animals, names of animals, and other characteristics in the descriptive text. in this learning Students are also expected to be able to match cards, answer questions carefully, and be able to use vocabulary into sentences. After the pre-test, all class VII D students were given treatment with flashcards media, then in the following week students would be tested again by completing a multiple-choice practice test. By using this flashcard method during the learning process, it is expected to have a significant effect on improving reading skills. For example, during the learning process about descriptive texts on the topic of animals, teachers can use flashcards with pictures of animals, names of animals, and other characteristics in the descriptive text. Students are also expected to be able to match cards, answer questions carefully, and be able to use vocabulary into sentences.

FINDINGS AND DISCUSSION

This study aims to test the effectiveness of flashcard media in improving descriptive text reading comprehension in class VII D students of MTs Muslimat NU Palangka Raya. By using one-group pretest-posttest pre-experimental design, data collection was carried out through multiple-choice tests before (pretest) and after (posttest) treatment by providing flashcard media in the learning process. The pretest was carried out before the treatment while the posttest was given after the card media treatment was completed in the learning process.

The findings of this study can also be explained through several learning theory perspectives. One such theory is the dual coding theory proposed by allan paivio. This theory states that information is more easily understood and remembered when presented through two channels of representation simultaneously: verbal and visual. In the context of this study, digital flashcards present information in the form of words or sentences (verbal) combined with images or illustrations (visual). The combination of these two elements allows students to process information through two different cognitive pathways, thereby strengthening comprehension and retention of both

vocabulary and descriptive text content.

In addition, the use of digital flashcards can also be explained through the principles of the Cognitive Theory of Multimedia Learning developed by Richard E. Mayer. This theory explains that learning will be more effective when material is presented through a combination of visual and verbal elements that are designed in a structured manner. In reading lessons, presenting images relevant to the text can help students construct mental representations of the information they read, thus facilitating comprehension.

In this study, digital flashcards not only function as a tool to introduce vocabulary, but also as a supporting medium for understanding context in descriptive texts. When students see images related to objects or characters described in the text, they can more easily connect the information they read with the visual representations provided. This helps students understand the meaning of words, phrases, and the relationships between information in the text.

In addition to the cognitive aspect, the use of digital flashcards also has the potential to increase student learning engagement. Visual and interactive learning media can increase student attention and motivation during the learning process. This is in line with various studies in the context of foreign language learning which show that the use of visual media can increase student participation and enrich the learning experience in the classroom.

However, it is important to emphasize that the improvement in learning outcomes found in this study is likely the result of a combination of several factors, including the use of engaging learning media, teacher teaching strategies, and active student engagement during the learning process. Therefore, the use of digital flashcards should be viewed as a supporting strategy in reading instruction, not the sole factor determining student learning success.

Thus, the use of digital flashcards in the reading learning process is not only supported by the empirical results of this study, but also has a strong theoretical foundation in cognitive and multimedia learning theory. Although the results show a positive trend in students' reading skills after using digital flashcards, there are several limitations that need to be considered when interpreting these findings: 1. Research Design: The use of a one-group pre-test and post-test model without a control group makes it difficult for researchers to isolate the pure effects of digital flashcards. Score improvements may be influenced by external factors such as student learning maturity, exposure to materials from other sources, or independent study outside of school hours. 2. Sample: The small sample size (25 students in one class) limits the generalizability of the findings. These results may not necessarily reflect the conditions of students in other schools or regions with different characteristics. 3. Conditional Variables: Teacher factors, classroom interaction dynamics, and learning atmosphere are variables that are difficult to control but influence student participation and learning outcomes. 4. Measurement Instrument: Data accuracy is highly dependent on the validity and reliability of the instrument. Furthermore, the similarity of question patterns between the pre- and post-tests poses the risk of a practice effect, where students achieve higher scores due to familiarity with the question format.

Practically, these findings offer contributions to English language teaching, particularly for descriptive texts: 1. Supportive Media: Digital flashcards are effective as a tool to facilitate vocabulary mastery and comprehension of text content before core reading activities begin. 2. Interactive Learning: Teachers can integrate this media into various activities, such as word-matching quizzes or sentence construction, to increase student engagement. 3. Supplemental Strategy: This media can be flexibly implemented in short durations (10–15 minutes) to reinforce understanding of main ideas without having to replace existing conventional methods. Visual Stimulation: The use of images supports visual learners, creating a more dynamic and engaging classroom environment.

To broaden the scope of these findings, future research is recommended to: Expand the scale of the study by involving a more diverse sample size and schools to increase generalizability. Implement a quasi-experimental design that includes a control group for more comprehensive data comparisons. Examine the long-term retention impact of media use on various types of texts other than descriptive texts. Explore the integration of digital flashcards with various current educational technology platforms to maximize the effectiveness of classroom learning.

Table 1. Pre-test and Post-test Scores

No	Pretest	Posttest
1.	52.00	68.00
2.	53.00	70.00
3.	54.00	71.00
4.	55.00	72.00
5.	55.00	72.00
6.	56.00	73.00
7.	56.00	73.00
8.	57.00	74.00
9.	57.00	74.00

10.	58.00	75.00
11.	58.00	75.00
12.	59.00	76.00
13.	59.00	76.00
14.	60.00	77.00
15.	60.00	77.00
16.	61.00	78.00
17.	61.00	78.00
18.	62.00	79.00
19.	62.00	79.00
20.	63.00	80.00
21.	63.00	80.00
22.	64.00	81.00
23.	64.00	81.00
24.	65.00	82.00
25.	66.00	83.00

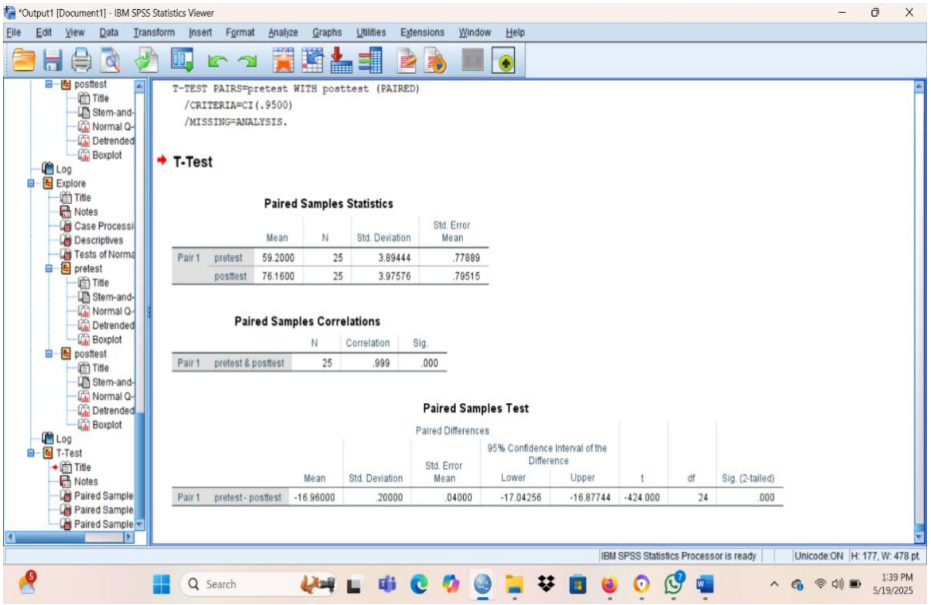
Statistical analysis was conducted to test the normality of the data, significant differences between pretest and posttest, and the effectiveness of digital flashcard media in the learning process. Therefore, a normality test needs to be conducted first to ensure that the data obtained can be normally distributed. The normality test uses the Shapiro-Wilk (SW) Test to check whether the pretest and posttest data results are normally distributed. If the value of the analysis results (Sig.) Is less than 0.05, it means that there is a significant difference (the data is not normally distributed), and if the significance value of the analysis results (Sig.) Is greater than 0.05, it means that there is no significant difference (the data is normally distributed).

Figure 1. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
pretest	.084	25	.200*	.976	25	.787
posttest	.082	25	.200*	.981	25	.895

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

From the results of the Shapiro-Wilk (SW) Test analysis, the Sig. figure is 0.787 for the pretest and 0.895 for the posttest. These two numbers when compared with Sig. α = 0.05 then 0.787> 0.05 and 0.895> 0.05 So the results of the data scores in the pretest and posttest are all normally distributed. then, the next step is to conduct a paired sample t-test to determine whether there is a statistically significant difference between the pre-test and post-test scores.



In addition, based on the analysis results table shows the t-count value = 424,000 and the t-table value = 1.708 (one-tailed test) with Df = 24. The analysis results conclude that the t-count value > t-table value (4,24 > 1.708) then Ha is accepted or Ho is rejected. In the alternative sense of Hypothesis (Ha) namely Learning carried out through Flashcards media techniques has a significant influence on the ability to read descriptive texts in class VII D students at MTs Muslimat NU Palangka Raya.

CONCLUSION

Based on the results of a study on the use of digital flashcards to improve descriptive text reading skills in grade VII D students at MTs Muslimat NU Palangka Raya, it can be concluded

that there was an increase in students' reading ability after implementing digital flashcards in the learning process. This improvement was evident in the difference in average scores between the pretest and posttest, which showed higher results after students participated in learning activities using digital flashcards.

Through a pre-experimental research design with the one-group pretest–posttest method, the research results showed that students who previously had difficulty understanding vocabulary, sentence structure, and the content of descriptive texts showed an improvement in their abilities after participating in learning with the help of flashcards media. The statistical analysis also showed that the pretest and posttest data were normally distributed, allowing the analysis of score differences to illustrate improvements in learning outcomes during the study period.

However, it is important to note that the findings of this study cannot directly demonstrate a definitive cause-and-effect relationship, as the study did not involve a control group for comparison. Therefore, the improvement in learning outcomes found needs to be understood as changes that occur during the implementation of learning using digital flashcards, which may also be influenced by other factors such as the learning process in the classroom, student involvement, and learning experiences during the research.

In addition, the scope of the research sample which was limited to one class with 25 students was also an important consideration in interpreting the results of this study. Therefore, the findings of this study are contextual and limited to the research environment. Therefore, generalizing the results to a wider population requires caution. Despite having several limitations, this research still provides practical contributions to English language learning, especially in the use of visual media that can help students understand vocabulary and the content of descriptive texts. Digital flashcards have the potential to be an alternative learning medium that can support a more interactive, engaging, and student-centered learning process.

For further research, it is recommended that researchers use a stronger experimental research design, such as a randomized controlled trial or quasi-experimental design with a control group, so that the effect of using digital flashcards on students' reading ability can be analyzed more accurately. In addition, future research can also involve more schools and a larger sample size so that the research results have a better level of generalizability. Further research could also consider longer intervention durations and add qualitative approaches, such as interviews or classroom observations, to better understand how and why the use of digital flashcards can help improve students' reading skills.

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