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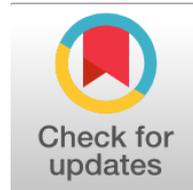
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Flashcards Improve Junior High Students Vocabulary Achievement: Kartu flash meningkatkan pencapaian kosakata siswa SMP.

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Abstract

This study examines the use of flashcards in English vocabulary instruction for seventh-grade students. **General Background:** Vocabulary mastery is a fundamental component of English language proficiency and supports listening, speaking, reading, and writing skills. **Specific Background:** In Indonesian junior high schools, students often experience difficulties in retaining newly learned vocabulary due to limited use of engaging learning media. **Knowledge Gap:** Although digital flashcards have been widely studied, limited attention has been given to handmade flashcards supported by AI-generated images in low-technology classroom contexts. **Aims:** This study aims to determine whether flashcard media improves students' English vocabulary acquisition and learning interest at SMP Muhammadiyah 8 Tanggulangin. **Results:** Using a pre-experimental One Group Pretest-Posttest Design with 20 students, the findings reveal an increase in mean scores from 71.00 to 75.75, with a paired sample t-test significance value of 0.000 ($p < 0.05$), indicating a statistically significant difference. **Novelty:** The study highlights the integration of AI-generated images into handmade flashcards as a practical low-cost instructional strategy. **Implications:** Flashcards can be integrated into English language teaching to support vocabulary retention, active participation, and meaningful repetition in junior high school contexts.

Keywords: Flashcards, Vocabulary Mastery, English Language Learning, Junior High School Students, Pre-experimental Design

Key Findings Highlights

1. Mean scores increased significantly after classroom intervention.

2. Statistical testing confirmed measurable learning gains.

3. Visual repetition supported classroom participation and retention.

Introduction

English is one of the most widely languages in the world, serving as a primary or secondary language for millions of people across diverse countries [1]. Its dominance in global interaction makes English an essential language for academic and professional advancement. As a core component of language proficiency, vocabulary plays a vital role in developing the four key English skills: listening, speaking, reading, and writing [2]. Without sufficient vocabulary knowledge, students may struggle to comprehend texts, express ideas, and engage effectively in communication [3]. In the context of Indonesia, English is taught as a foreign language and often presents challenges for learners due to differences in structure, grammar, and pronunciation compared to the Indonesian language. Students frequently encounter difficulties in mastering vocabulary, which becomes a barrier to achieving overall English proficiency. Therefore, implementing effective strategies and learning media is crucial to support vocabulary acquisition and enhance learning outcomes.

One of the common challenges faced by Grade VII students in learning English vocabulary is the difficulty in retaining new words. Students often forget vocabulary shortly after learning it, which hampers their ability to communicate effectively in English. To address this, teachers are expected to implement strategies that reinforce vocabulary through regular review, contextual use in daily activities, and sentence construction. Utilizing a variety of methods, media, and techniques can help sustain student engagement and facilitate long-term vocabulary retention. At SMP Muhammadiyah 8 Tanggulangin, a similar problem has been identified many students struggle to retain vocabulary. This indicates a lack of effective reinforcement and engaging learning methods. Continued reliance on traditional lecture-based learning has proven inadequate in meeting learners' needs, as it often fails to spark interest and does not support lasting retention. In contrast, research has highlighted the effectiveness of active learning strategies such as the use of flashcards in improving vocabulary retention and increasing student motivation. Research has shown that active learning approaches, such as flashcards, are very effective in addressing this issue as they can increase student engagement and memorization of their vocabulary [4].

Flashcards are not only useful to help memorize words, but also to help understand and apply them in context [5]. Matruty & Que (2021) found that flashcards supported junior high school students in both memorizing and contextualizing English vocabulary [6]. According to their research, repetition and visual support improve retention. This is consistent with this study, which showed that the use of flashcards featuring work-related images improved students' test scores and enabled them to use more vocabulary in descriptive writing. This study did not only cover noun-based vocabulary, but also included speaking activities and descriptive sentences, indicating a broader integration of skills.

As a vocabulary learning tool, flashcards have been proven to help junior high school students better understand and remember vocabulary. In addition, Flashcards make the learning experience more fun and interactive, motivating students to be more active in learning vocabulary than traditional methods [7]. In addition, flashcards can also help improve meaningful repetition of vocabulary. Vocabulary repetition with flashcards can also improve students' vocabulary scorecard results, which shows the effectiveness of this media in strengthening students' memory. looking at the added benefit of flashcards in facilitating understanding of the context in which vocabulary is used, helping students apply the vocabulary in relevant contexts. To teach vocabulary to students, one of the effective media is flashcards media which uses pictures, words and meanings in it to make it easier to remember vocabulary [8]. As an example of activities that will be carried out by researchers in teaching vocabulary in English learning by using flashcard media containing images with material describing people. through this material describing people, students will be able to observe and learn new vocabulary in a real and meaningful context [9]. By using the material of describing people, the teacher shows one of the flashcard media then the teacher says the word and its meaning and asks students to imitate it. After that the teacher asks students to describe their classmates and read the results in front of the class.

Research on the use of flashcards to improve the comprehension of English vocabulary learning in junior high school students showed influential results in various aspects. The use of flashcards significantly increased the vocabulary size of junior high school students, where their comprehension increased significantly in the size of students' vocabulary after using flashcards media [10]. In addition, the use of flashcards also helps students remember vocabulary longer than conventional methods, such as reading or taking notes manually [11]. Research on the use of flashcards as a medium for English language learning has become a major concern among educators and researchers. Visual aids such as flashcards are proven to help students improve their vocabulary. Previous studies have shown that using flashcards can improve students' engagement and academic achievement, particularly in vocabulary learning at the primary and secondary levels. For example, a study found that demonstrated students taught using bilingual e-flashcards exhibited higher retention and motivation compared to those who learned through conventional note-taking [12]. This finding aligns with the current study, where seventh-grade students at SMP Muhammadiyah 8 Tanggulangin also showed improved vocabulary mastery and learning interest after being taught with flashcards. However, unlike Kusuma's study that utilized digital flashcards, this research employed handmade physical flashcards, highlighting that even low-tech visual aids can yield similarly significant learning outcomes when implemented in an interactive manner. In addition, other studies have also highlighted the use of e-flashcard applications for English vocabulary recognition in early childhood, which showed positive results in the teaching and learning process [13].Although digital media such as e-flashcards have their advantages, not all schools or students have adequate access to devices and internet connections. Therefore, innovations are needed in the use of manual flashcards that remain interesting and effective. One solution is to use images generated from Artificial Intelligence (AI) technology to create more varied, unique, and personalized manual flashcards [14].

The purpose of this study is to determine the effect of flashcards media in improving the acquisition of English vocabulary of students of SMP Muhammadiyah 8 Tanggulangin and to understand its impact on their interest in learning.With a better understanding, such media Flashcards can be more effectively integrated into the English language learning curriculum,

thus helping students overcome barriers in learning English vocabulary, which is expected to be the foundation for other language skills [15]. The use of interactive and visually appealing media through the support of AI technology in image generation, such as flashcards, can help students in understanding and remembering new words. This is in line with the findings of several studies that support the use of multimodal teaching strategies to improve vocabulary acquisition [16].

The result of Preliminary observations at SMP Muhammadiyah 8 Tanggulangin indicated that many Grade VII students still face challenges in mastering English vocabulary. Some students appeared less engaged during lessons, which may be influenced by various factors such as limited exposure to interactive learning media or the natural tendency of young learners to lose focus easily. Recognizing this, the integration of varied and engaging teaching techniques is important to support vocabulary development and maintain students' interest in learning. In this context, the researcher aims to implement flashcards as an additional learning medium to support and enrich the vocabulary learning process. Flashcards, with their visual and interactive nature, can help reinforce vocabulary in a fun and meaningful way. The use of interesting media can increase children's enthusiasm for learning, create a safe classroom atmosphere, and support the formation of a fun and meaningful learning experience [17]. By applying this strategy, it is that students' vocabulary mastery will increase, which in turn can improve their overall English ability, especially in students' vocabulary and make the material [18] and delivered by the teacher easier for students to understand. Therefore, more interesting and interactive learning media is needed. One media that is considered effective is image-based manual flashcards generated by AI technology, because it is able to provide visual stimulus and support the process of meaningful repetition.

Method

a. Research Design

This research uses quantitative methods as the main approach which uses the Pre-Experimental design form of the One Group Pretest and Posttest Design type [19]. Quantitative research method is a research approach based on philosophy with sampling groups that are generally randomized. This method collects data with quantitative or statistical data analysis to test the hypothesis that has been made . In the Pretest and Posttest design, there is a pretest stage before the implementation of the treatment is carried out. The aim is to get a more accurate understanding of the initial conditions before starting the treatment. With the pretest, the treatment results can be compared directly with the previous situation, so as to objectively assess the effects or changes that occur due to treatment. The research design that will be used is the One Group Pretest-Posttest approach. In this design, the research sample is one group of subjects or participants. Data collection is done by measuring variables to be observed during treatment (pre test) and after treatment (post test). The main purpose of this design is to see if there are changes that occur in the subject after experiencing certain treatments.

b. Population and Sample

This study involved students of SMP Muhammadiyah 8 Tanggulangin class VII, because they saw the low vocabulary in students. In addition, a 7th grade student at SMP Muhammadiyah 8 Tanggulangin aged 12 years. The total population in this study was approximately 69 students spread across three classes, namely 7-A, 7-B, and 7-C. The researcher chose class 7-A as the subject of the study after observing the learning process and analyzing the average scores of students in each class. Based on the data obtained, the average score for students in class 7-A was 65, while class 7-B had an average score of 72 and class 7-C had an average score of 75. The lower average score in class 7-A indicates that students in this class need to improve their vocabulary compared to other classes. Therefore, class 7-A was selected as the target population for implementing flashcards as a vocabulary learning strategy. The sample used in the experimental group consisted of 20 students from class 7-A. This study aims to test the effectiveness of using flashcards in improving students' English vocabulary mastery. It is hoped that through the implementation of this strategy, students can improve their English vocabulary and have alternative learning methods that can be used independently, both in school and at home, as a complement to the teaching methods already implemented by teachers.

3. **Procedur of Collecting Data**

1. Pretest

A pretest was administered to 20 students of Class 7-A to assess their initial understanding of English vocabulary before the flashcard treatment. The test consisted of 20 multiple-choice questions, each worth 5 points, for a total possible score of 100. Students completed the test individually within forty minutes without any external assistance. The test items were adapted from a previous thesis that examined the use of flashcards to increase vocabulary size among junior high school students [10]. The questions were modified to align with the vocabulary level and context of the current study, while maintaining the core indicators of vocabulary mastery. This pretest served as the baseline for evaluating the effectiveness of the flashcard intervention.

2. Treatment

After the pretest, at the initial stage, students were given Descriptive Text material with the subtopic of Describing people's jobs. This aims to compare the effectiveness of traditional methods with the use of flashcards. After that, students were introduced to learning media in the form of homemade flashcards containing pictures of professions made with the help of AI. Students then chose one of the profession picture characters to describe orally and in writing. Some students read their writing in front of the class to increase their confidence and speaking ability in front of the class.

Meeting	Material	Exercise	Reflection
1	- Introduction to Descriptive Text- profession vocabulary	- Pretest (multiple choice) - Mention professions and physical characteristics in brainstorming	- Students reflect on their initial understanding of descriptions of people and jobs
2	- Flashcards: Describing People and Jobs	- Create a group consisting of 3-4 children - Writing short descriptive text (3-5 sentences) - Speaking: reciting descriptive text	- Discussion of learning experience with flashcards- Students realize the benefits of visualization to aid memory and comprehension
3	- Review and Reinforcement of Material	- Posttest: writing descriptive text without the help of flashcards	- Class discussion on changes in skills before and after using flashcards

Table 1. **Tabel 1**. **Simple Treatment**

3. **Posttest**

After the treatment was given, students took a posttest with an almost identical format to the pretest. This test consisted of 20 multiple choice questions and a short writing task to measure students' vocabulary mastery as well as their ability to compose simple descriptive texts. This posttest aims to evaluate students' mastery of understanding of the subtopic *Descriptive Text: Describing People Kinds of Jobs* after learning using flashcards media. The posttest results are then compared with the pretest results to find out how good the students' abilities are.

1. **Data Analysis**

Data analysis was conducted to determine whether there was a difference in students' learning outcomes before and after the treatment of using flashcards to teach English vocabulary [20]. The steps of data analysis are as follows :

a. Pretest and Posttest Scores

Data was collected from the results of the pretest (before the use of flashcards) and posttest (after the use of flashcards). Each student gets a score from the same test with an equal number of questions.

b. Normality Test

Before conducting hypothesis testing, a normality test is first carried out to determine whether the data is normally distributed or not. The normality test was carried out using the Shapiro-Wilk test by utilizing the SPSS 27 for Windows.

c. Hypothesis Test

After using the normality test if the values are normally distributed, using the paired sample t-test to determine the effect of using flashcards media on students' vocabulary understanding. This test compares students before and after being treatment.

d. Interpretation of Results

then make a conclusion about the credibility of the research hypothesis whether it is proven or not.

Result and Discussion

Each variable in this study was analyzed using descriptive statistics. The results include the minimum, maximum, difference between the highest and lowest values (range), average value (mean), and standard deviation. The results of this research prerequisite test used as a normality test using Shapiro Wilk. The data are presented in the following table :

Tabel 2 . Descriptive Statistics