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## The Effectiveness of Flashcard Games to Improve Vocabulary Mastery of Seventh Grade Students at SMPN 7 Palu

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### ABSTRACT

This study aims to determine the effectiveness of flashcard games in improving the vocabulary mastery of seventh-grade students at SMPN 7 Palu. A quasi-experimental method with a pre-test and post-test control group design was employed. The participants consisted of two purposively selected classes: one serving as the experimental group, taught through flashcard games, and the other as the control group, receiving conventional instruction. Vocabulary tests were administered before and after the treatment to assess students' improvement. The collected data were analysed using descriptive statistics and an independent samples t-test at the 0.05 significance level. The findings revealed a significant difference between the post-test mean score of the experimental group (79.42) and the control group (67.31), with a p-value of 0.000 (<0.05). These results indicate that the flashcard game effectively enhanced students' vocabulary mastery. The use of visual and interactive media, such as flashcards, facilitated better word retention, understanding, and recall through dual coding of verbal and visual information. Moreover, the game-based activities increased students' engagement and motivation during learning. In conclusion, flashcard games provide an effective and enjoyable medium for improving students' English vocabulary mastery. It is recommended that English teachers integrate such interactive media into classroom instruction to foster more meaningful and engaging learning experiences.

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### 1. INTRODUCTION

Vocabulary is one of the essential elements in learning English as a foreign language. It serves as the foundation for developing other language skills such as listening, speaking, reading, and writing [1]. Without an adequate vocabulary, students find it difficult to express ideas, comprehend texts, or communicate effectively [2]. Therefore, vocabulary mastery plays a central role in improving students' overall English proficiency. However, many

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students still face challenges in learning vocabulary because of the monotonous, rote-based teaching approaches commonly used in classrooms [3]. In many cases, vocabulary learning becomes a passive process in which students simply memorise words without understanding their use in real communication contexts [4], [5], [6], [7], [8]. This condition underscores the urgent need to introduce more dynamic, student-centred learning approaches.

In the Indonesian EFL (English as a Foreign Language) context, vocabulary instruction often focuses on memorisation and translation activities [9]. These traditional techniques can decrease students' interest and motivation to learn new words, thereby reducing vocabulary retention [10]. To address this issue, teachers need to implement interactive learning media that promote active participation, engagement, and enjoyment during the learning process [11]. One effective strategy is the use of flashcards — visual learning tools that combine pictures and words to enhance learners' comprehension and memory [12]. As Indonesian junior high school students are generally visual learners, the use of picture-based materials such as flashcards can be particularly helpful in connecting abstract vocabulary with concrete visual representations.

Flashcards are considered beneficial because they support dual coding of information through both visual and verbal representations [4], [13], [14], [15], [16], which enhances memory retention [17]. According to Nation [18], repeated exposure to vocabulary items through engaging media can help students store and recall words more effectively. Moreover, when used as part of a game-based learning activity, flashcards can transform the learning environment into a fun and competitive experience that encourages collaboration and enthusiasm among learners [19]. This combination of visual and interactive methods aligns with the communicative approach to language teaching, which emphasises meaningful and enjoyable learning experiences [20]. In this regard, flashcard-based games not only strengthen students' vocabulary knowledge but also contribute to affective aspects of learning, such as motivation, curiosity, and self-confidence.

Several previous studies have confirmed the effectiveness of flashcards in vocabulary learning. Azahra et al. [21] found that students who used flashcards showed greater improvement in vocabulary retention than those who learned through conventional methods. Similarly, research by Febriyanti and Novita [22] reported that game-based flashcards significantly increased students' motivation and engagement in learning new English words. These findings suggest that flashcard games not only facilitate understanding but also create a positive learning atmosphere that supports long-term vocabulary acquisition. However, most of these studies were conducted in different educational contexts, leaving a gap in understanding how flashcard games work effectively within the Indonesian junior high school setting. Therefore, further empirical investigation is needed to confirm their applicability and effectiveness in this context.

Based on these considerations, this study aims to examine the effectiveness of flashcard games in improving vocabulary mastery among the seventh-grade students at SMPN 7 Palu. The results of this research are expected to provide empirical evidence on the role of interactive and visual media in enhancing students' English learning outcomes. Furthermore, the findings may serve as a reference for teachers to develop creative and enjoyable teaching strategies that make vocabulary learning more effective and meaningful.

By addressing both cognitive and affective dimensions of vocabulary learning, this research seeks to contribute to improving English language pedagogy in Indonesian secondary education.

## 2. METHOD

This study employed a quasi-experimental design with a pre-test and post-test control group [23]. The design was chosen because it allowed the researcher to compare vocabulary learning outcomes between students taught using flashcard games and those taught through conventional methods, without random assignment due to the school's fixed class arrangement. Both groups were given the same pre-test to measure their initial vocabulary mastery, followed by different instructional treatments, and finally a post-test to evaluate improvement. The experimental group was taught using flashcard-based activities as visual and interactive aids, while the control group received traditional instruction emphasising translation and memorisation. The pre-test and post-test scores were compared to determine the effectiveness of the flashcard game in improving students' vocabulary mastery. The research was conducted at SMPN 7 Palu during the 2022/2023 academic year. The population included all seventh-grade students of the school, each class consisting of approximately 25–30 learners. Two classes were selected as the research samples using purposive sampling, based on teacher recommendations and students' relatively similar English proficiency levels [3]. One class, VII A, was designated as the experimental group, and the other, VII B, as the control group, for a total of 52 students (26 in each group). The purposive sampling technique ensured that both groups shared comparable language backgrounds and learning experiences, thereby minimising bias from individual differences.

The primary instrument for data collection was a vocabulary test composed of multiple-choice items that measured students' understanding of English words related to everyday topics such as daily routines, objects, and descriptive terms. The test was administered twice: as a pre-test before the treatment and as a post-test after the treatment period. To ensure the instrument's quality, validity, and reliability, tests were conducted. Content validity was established through expert judgment from English teachers, and reliability was assessed using Cronbach's Alpha, yielding a coefficient of 0.78, indicating the instrument's reliability [4]. Additionally, classroom observations and documentation were carried out to support the quantitative data. The inclusion of both test-based and observational data strengthened the credibility of the findings through methodological triangulation.

The implementation procedure consisted of three main stages: preparation, treatment, and evaluation. During the preparation stage, the researcher developed lesson plans, created flashcard materials, and prepared test instruments aligned with the school syllabus. The treatment stage lasted for four sessions. The experimental group was taught using flashcard games that included interactive activities such as word-matching, guessing, and pronunciation activities, designed to enhance engagement and motivation. Meanwhile, the control group followed the conventional method, emphasising word memorisation and repetition. After the teaching sessions were completed, the evaluation stage involved administering the post-test to both groups to measure the improvement in vocabulary

mastery. Throughout the treatment process, the researcher maintained classroom consistency by ensuring equal instructional time, teacher involvement, and material coverage for both groups.<sup>17</sup>

To analyze the data, both descriptive and inferential statistical methods were used. Descriptive statistics helped calculate the average, how much scores varied, and the percentage of improvement in vocabulary scores [24]. For inferential analysis, an independent sample t-test was used to check if there was a significant difference between the scores of the experimental and control groups after the test. Before doing the t-test, we checked if the data followed a normal distribution and if the variance were similar, which is necessary for using parametric tests. All the analysis was done using SPSS software version 22.0. We set the significance level at 0.05, which means that if the p-value was less than 0.05, we rejected the null hypothesis. This showed that the flashcard game had a significant effect on students' vocabulary skills. This process provided real evidence that the improvements were caused by the treatment and not just by chance, helping to make sure the study results were reliable.

### <sup>12</sup> 3. RESULTS AND DISCUSSION

#### 3.1 Results

The main goal of this study was to check if using flashcard games could help students learn vocabulary better than the usual teaching methods. The information was gathered from tests given before and after the study to both the group that used flashcard games and the group that didn't. To understand the results, we used two types of statistical methods: one to describe the data, like averages and the amount of improvement, and another to compare the two groups using a t-test.

<sup>3</sup> Table 1. Descriptive statistics of students' vocabulary test scores before and after the treatment.

<sup>32</sup> Group	Pre-test Mean	Post-test Mean	Gain Score
Experimental	55.73	79.42	23.69
Control	56.15	67.31	11.16

As shown in Table 1, both groups demonstrated improvement in their vocabulary scores after the treatment. However, the experimental group achieved a higher post-test mean score (79.42) compared to the control group (67.31). The gain score difference (23.69 vs. 11.16) suggests that the flashcard game contributed more effectively to students' vocabulary improvement.<sup>18</sup>

To confirm whether this difference was statistically significant, an independent sample t-test was performed. The t-test indicated a p-value of 0.000, which is lower than the alpha level of 0.05. This means that there was a statistically significant difference between the post-test scores of the experimental and control groups. Consequently, the null hypothesis ( $H_0$ ), stating that there is no difference between the two groups, was rejected, and the alternative hypothesis ( $H_1$ ), stating that flashcard games improve vocabulary mastery,

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was accepted. This statistical result shows that the use of flashcard games had a significant positive effect on vocabulary mastery among seventh-grade students at SMPN 7 Palu.

### 3.2 Discussion

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The improvement observed in the experimental group can be attributed to the visual and interactive nature of flashcards, which helped students associate words with images, thereby enhancing their memory retention. This finding supports the Dual Coding Theory proposed by Paivio [19], which posits that information encoded both visually and verbally is more likely to be remembered. By engaging both cognitive and sensory processing, flashcards enabled students to connect meaning to imagery, reducing the cognitive load typically associated with rote memorisation.

Furthermore, the inclusion of game elements transformed vocabulary learning into a more enjoyable and competitive activity, which fostered higher motivation and participation. The interactive, playful atmosphere encouraged collaboration among students, reducing anxiety and fostering active engagement. Such an environment aligns with the communicative approach to language teaching, which emphasises meaningful, student-centred learning.

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The results of this study are consistent with previous research by Alqahtani [9], who found that flashcard-based learning significantly improved students' vocabulary retention and recall. Similarly, Febriyanti and Novita [22] reported that students taught through flashcard games demonstrated greater enthusiasm and engagement than those who learned through conventional instruction. These findings collectively emphasise that incorporating visual and game-based media in English classrooms enhances students' attention, motivation, and long-term vocabulary acquisition.<sup>31</sup>

Moreover, during classroom observation, students in the experimental group were found to be more active, cooperative, and confident when using new vocabulary in discussions. In contrast, students in the control group appeared less enthusiastic and relied heavily on rote memorisation. This observation supports the statement of Wright, Betteridge, and Buckley [19], who assert that game-based learning fosters classroom interaction and builds a positive <sup>28</sup>notional atmosphere conducive to effective language acquisition.

Overall, the findings indicate that flashcard games not only improve students' vocabulary mastery but also contribute to positive behavioural and affective outcomes in learning. From a pedagogical perspective, these results suggest that English teachers should integrate visual aids and interactive media into their instruction to make vocabulary learning more effective, especially for junior high school students, who benefit from stimulating, engaging learning experiences.

## 4. CONCLUSION

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This study investigated the effectiveness of flashcard games in improving vocabulary mastery among seventh-grade students at SMPN 7 Palu. The results revealed a statistically significant difference between the experimental group, which was taught using flashcard games, and the control group, which received traditional instruction. The post-test scores showed that students who learned through flashcard games achieved greater vocabulary

mastery than those who did not. This finding confirms that implementing flashcard games effectively enhances students' English vocabulary learning outcomes and supports the hypothesis that interactive learning tools positively influence language acquisition.

The findings further suggest that integrating visual and interactive learning media into English language instruction can increase students' motivation, participation, and retention of new vocabulary. Flashcards, as a form of game-based learning, help students associate words with images and meanings more effectively, making the learning process more engaging and memorable. These results underscore the pedagogical importance of creating learning environments that combine cognitive stimulation with enjoyment, especially for junior high school learners who benefit from visual and experiential learning activities. Therefore, English teachers are encouraged to use flashcards and similar visual tools as part of their teaching strategies to foster active engagement and improve students' vocabulary development.

For future research, it is recommended to explore the use of flashcards in other aspects of language learning, such as grammar, reading comprehension, or speaking fluency. Further studies involving a larger, more diverse sample across different educational levels and contexts are also recommended to enhance the generalizability and robustness of the findings. Additionally, researchers may consider employing mixed-method designs to gain deeper insights into students' attitudes and cognitive processes during flashcard-based learning activities..

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