# Effect of word card media on grade 1 students' early reading skills

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**Abstract.** Language skills are essential in daily life, particularly in education. At the elementary level, reading development progresses through basic and advanced stages. Many first-grade students continue to struggle with early reading due to inadequate learning stimulation, limited use of instructional media, and low engagement during lessons. This study investigates the effect of using word card media on the early reading skills of first-grade students at SDN Purwadadi 1, Subang Regency. A pre-experimental method with a one-group pretest-posttest design was applied, involving 27 students. Data were collected through a performance assessment test, where students demonstrated their reading abilities before and after the intervention. The results showed an improvement in the average score from 58.96 in the pretest to 65.11 in the posttest, with a 10.43% increase. Statistical analysis using the Wilcoxon Signed Rank Test showed a significance value of < 0.05, indicating a meaningful difference between the two tests. The findings suggest that word card media effectively enhances early reading skills, creates a more engaging learning experience, and increases student participation in the classroom. It is recommended that teachers integrate word card media into early reading instruction to enhance student interest, increase engagement, and improve reading outcomes.

## Introduction

Language skills are essential for daily life and are divided into four core abilities: listening, speaking, reading and writing. These skills are interrelated, with reading playing a crucial role in systematic teaching and learning activities (Alvani et al., 2024). According to Susanti (2022), reading is an activity performed by the reader in interpreting written material to capture the message intended by the author, which is achieved by understanding the meaning of a text. For students to benefit from this process, reading must be conceptualized in a way that allows them to enjoy the experience and comprehend the material (Sari et al., 2022). Reading is vital not only for acquiring knowledge but also for achieving academic success, as it is a primary method through which students enggage with learning content at school.

At the primary education levels, reading skills are categorized into early and advanced stages. Early reading skills are introduced in grades 1 and 2, while advanced reading skills are taught starting from grade 3 (Nurani et al., 2021). According to the National Reading Panel, which identifies basic

literacy skills, early reading skills are also related to children's basic literacy skills (Purnadewi & Widana, 2023). First, comprehension includes proficiency in the alphabet, phoneme awareness, and the proficiency to identify and adjust sounds in spoken communication. Secondly, fluency refers to the ability to read text at an appropriate speed with accuracy and expression. This fluency relies on word recognition skills essential for developing proficient reading skills. Third, comprehension, which involves understanding text content and vocabulary, is often considered the core of reading activities (Pyle et al., 2024). Early reading skills are important components in education and personal development with the right strategies and consistent practice, learners can improve their reading ability, supporting their future academic and professional success.

Reading skills in the early stages involve letter recognition consisting of consonants and vowels. Most students start by identifying the first letters of their names, close relatives, and favourite objects. Reading activities allow students to acquire new information, knowledge and experiences (SY & Dafit, 2024). Moreover, better integration of the reading network and connections with other brain areas support early-stage reading language skills (Benischek et al., 2020). Learning success is closely related to students' early reading skills, and several indicators must be achieved in the early grade (Zakiyyah et al., 2023). Early reading skills form the foundation necessary for future academic success.

The importance of early reading is further evidenced by the implementation of the Early Grade Reading Assessment (EGRA), which systematically measures students' reading skills. According to Gove & Wetterberg (2011) the target indicators determined when using the EGRA test are recognizing letters, understanding syllables, reading non-words, and reading words in general. However, students still experience difficulties in initiating reading and learning activities. Grade 1 students are at the concrete operational level, where students can use their logical thinking to solve problems. However, teachers must be able to organize and create a comfortable atmosphere so students' decision-making is not rushed. Grade 1 students still struggle to recognize, spell, and make words. This needs to be analyzed in the early grades to make improvements and appropriate handling (Aprilia et al., 2021). Research by Rohman et al. (2022) indicates that students face obstacles in early reading because they are unable to read diphthongs, double vowels, or double consonants, cannot pronounce certain consonants, cannot spell, read randomly, add and replace words, and cannot read in full. Early reading difficulties are related to word omission, word substitution, spelling errors, incorrect pronunciation of words, and pronunciation of patent letters (Arifianto & Supriyadi, 2023).

Preliminary interviews with first-grade teachers at SDN Purwadadi 1, Subang Regency, revealed that students' reading abilities vary widely. This variation is illustrated in the following diagram:
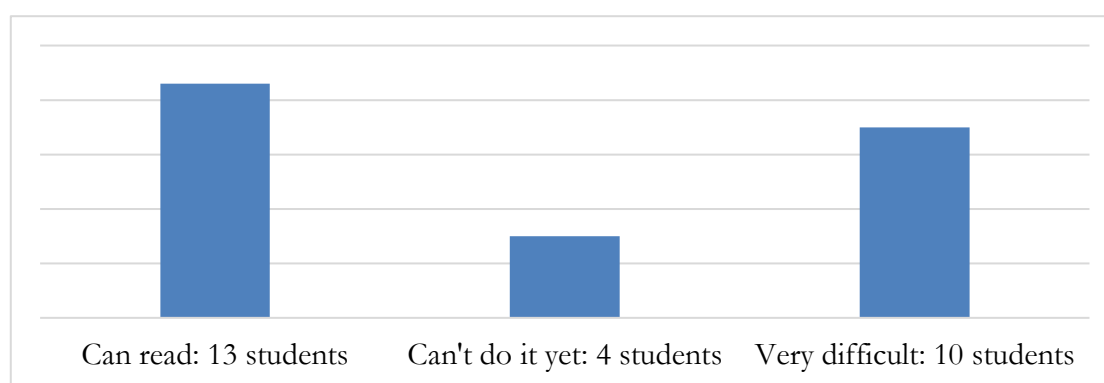


**Image 1.** Reading Ability

Based on the diagram above, it can be seen that as many as 27 students, 13 students are only able to read, 4 students cannot read, and 10 students have difficulty in reading. Some of these difficulties include students not memorizing letters, students having difficulty remembering letters, and students having difficulty combining letters into words. Then, the researcher also found that students had difficulty at the beginning reading stage, namely, students had difficulty concentrating when doing reading activities and combining syllables. Moreover, teachers also rarely use learning media due to limited time to prepare media according to student conditions.

Challenges in early reading can arise from both internal and external influences. Internal factors include physical conditions (health), physiological aspects (sensory and motor skills), and psychological aspects such as motivation, interest, and self-confidence (Septiani, 2024; Windarti et al., 2023). External factors involve the family and school environment. Lack of support from teachers and families can worsen reading difficulties (Arifianto & Supriyadi, 2023). Reading difficulties arise from a combination of internal factors like low motivation and limited vocabulary, and external factors such as text complexity and learning environment.

The combination of these internal and external factors can significantly affect students' ability to master early reading skills (Afifah et al., 2022). One of the external factors can come from schools, such as facilities provided by schools and learning activities carried out by educators. Teachers can increase students' interest in reading by acting as creators, inspirers, facilitators, motivators, evaluators, and dynamicators (Khasanah & Setyowati, 2024; Syafira & Dafit, 2022). Then, learning through play activities will actively involve students and increase student interest (Sari et al., 2022).

The availability of appropriate learning media helps students minimize their reading difficulties. At the elementary school level, teachers' basic teaching skills are very influential, including the ability to open and close lessons, explain the material, provide feedback to students, and choose learning media (Prayoga & Nurharini, 2024). Media is a tool or means of learning intermediaries for teachers to convey lessons to students (Hidaya et al., 2022). The use of appropriate media not only helps teachers deliver material more clearly and systematically and allows students to more easily understand the concepts taught through visualization or interaction provided by the media. With learning media, the learning process becomes more contextualized, where students can relate the material learned to real experiences or simulations that resemble real-world situations. In the long run, using varied media can also increase student learning motivation because the classroom atmosphere becomes more dynamic and not monotonous. Therefore, selecting media that suit students' needs and characteristics is the key to creating effective and enjoyable learning (Suhardita et al., 2024).

The urgency of this research is driven by the ongoing challenges faced by Grade 1 students in mastering early reading skills, as evidenced by the variation in reading abilities among students at SDN Purwadadi 1. Many students struggle with recognizing letters, spelling, and blending syllables into words. This research aims to explore how word card media can help address these difficulties and improve students' reading skills. The use of appropriate learning media, such as word cards, could enhance engagement and provide a systematic approach to overcoming these early reading barriers.

A learning tool that may be used to aid the early reading process is word cards, which can be used to train students' concentration in learning and develop students' memory of vocabulary (Zuliani et al., 2023). Some researchers call them picture word cards, which display images, text, or symbols that guide students in spelling or adding vocabulary based on related images (Gading et al., 2019). There are four advantages of using word card media in learning: it is easy to use, practical because of its small size, easy to carry, easy for students to remember, and fun learning activities (Rofah &

Mulyawati, 2022). Word cards are media used to train language skills that can actively involve students in learning.

Given the importance of the application of word card media in learning, this study aims to examine the effect of utilizing word card media on the early reading skills of Grade 1 students at SDN Purwadadi 1, Subang Regency. Researchers are interested in investigating word card media due to the various positive benefits experienced by students using it. Based on research conducted by Tyas et al. (2024) entitled "Increasing Student Learning Activities Using the Make-A-Match Model Assisted by Word Cards," the study found that the Make-A-Match learning method assisted by word cards could significantly increase student learning activities. Therefore, this study will specifically explore the effect of word card media on the early reading skills of first-grade students at SDN Purwadadi 1, Subang Regency. To guide this research, the following questions are proposed: (1) How are the early reading skills of Grade 1 students before using word card media? (2) How are students' early reading skills after using word card media? (3) Does word card media have a significant effect on students' early reading skills?. The hypotheses proposed in this study are: $H_0$: There is no significant effect of using word card media on the early reading skills of Grade 1 students. $H_1$: There is a significant effect of using word card media on the early reading skills of Grade 1 students. Thus, this study aims to describe the students' early reading skills before and after the intervention and to analyze the effect of word card media in enhancing their early reading performance.

## Method

This study employed a pre-experimental approach using a one-group pretest-posttest design, which observed one experimental class without a control group. This research was conducted in class 1B of SDN Purwadadi 1 Subang Regency to determine the effect of word card learning media on students' early reading skills. Through this design, students' reading skills were assessed before and after using word card media to measure its effectiveness in improving their literacy development. The research procedure includes administering a pretest, applying word card media as an intervention, and conducting a posttest to analyze differences in students' reading ability according to is Creswell & Creswell (2017) as follows.

**Table 1.** Research Methodology Framework

| Pre-Test | Treatment | Post-Test |
|----------|-----------|-----------|
| $O_1$ | X | $O_2$ |

Explanation:
$O_1$ = First measurement before treatment word card media
X = Intervention or experiment giving word card media
$O_2$ = Second measurement after treatment word card media

The target population for this study was first-grade students of SDN Purwadadi 1, which were divided into classes 1A and 1B. The research sample was determined using a randomized sampling technique, ensuring that every student in the population had an equal opportunity to be selected. This method was applied without considering stratification or distinguishing characteristics, thus allowing for a more unbiased and representative selection of participants for the study. As a result, class 1B, consisting of 27 students, was selected as the experimental group for this study.

The research data were collected through an initial reading skills test administered both before and after the intervention. The test instrument was validated by experts, confirming its appropriateness

for assessing students' early reading abilities. The data analysis used descriptive and inferential statistics. Descriptive analysis summarized the data through means, standard deviations, and frequency distributions. Inferential analysis tested the research hypothesis to determine the significance of differences between pretest and posttest scores after using word card media. This approach clarified the impact of the intervention on students' early reading skills.

Before analysis, the data's normality was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests to determine the appropriate statistical method. If the data were normally distributed, a parametric T-test would be used to assess score improvements. In the case of non-normal distribution, a nonparametric Wilcoxon Test was applied. According to Murakami & Lee (2023), the Wilcoxon-Mann-Whitney test is a suitable alternative for hypothesis testing when data are not normally distributed.

The normality test indicated that the data were not normally distributed, so the Wilcoxon Test was used to analyze the differences between pretest and posttest scores after the word card media intervention. IBM SPSS for Windows version 29.0 was employed to ensure objective and reliable data processing, aiming to accurately assess the effectiveness of word card media in improving the early reading skills of first-grade students at SDN Purwadadi 1, Subang Regency.

## Results and Discussion

This study utilized a one-group pretest-posttest experimental design to examine the effectiveness of word card learning media in enhancing students' early reading skills. The research procedure comprised three stages: (1) administration of a pretest to assess baseline reading proficiency, (2) implementation of the intervention using word card media, and (3) administration of a posttest to evaluate improvements following the intervention.The Word Card Media used in this study consisted of 10 cm × 15 cm cards printed on thick paper and laminated for durability. The cards featured alphabetical consonants, vowels, syllables, and simple words appropriate for the early reading development level of first-grade students. To improve readability, all text was printed in large block letters with contrasting colors. In addition, the cards could be arranged into meaningful words and simple sentences. This media supported students' early reading skills and ability to construct words and sentences progressively. The pretest and posttest data are presented in table 2.

**Table 2.** Descriptive Analysis of Pretest and Posttest Reading Skill Results

| Calculation Type | Group | |
|---|---|---|
| | Pretest | Postest |
| Mean | 58.96 | 65.11 |
| Std.Deviation | 34.91 | 36.80 |
| Minimum | 5 | 5 |
| Maximum | 100 | 100 |
| A lot of data | 27 | 27 |

Table 2 shows that the average pre-test and post-test scores of early reading skills for class 1 with 27 students are as follows: The average value of students during the pre-test was 58.96, with the highest score of 100 and the lowest score of 5. Meanwhile, the average value obtained in the final test (post-test) was 65.11, with the highest score of 100 and the lowest score of 5. The next stage is the prerequisite test, namely the normality test. The normality test determines whether the data presented follows a normal distribution. In this study, the normality test was carried out using the Shapiro-Wilk test because the data consisted of less than 30 students, with the help of the SPSS version 29.0 application for Windows, at a significance level of 0.05 for pre-test and post-test data.

The normality test results obtained using the kolmogorov-smirnov-shapiro-wilk test are presented in table 3 as follows.

**Table 3.** Shapiro-Wilk Normality Test Results

| Group | Statistic | Df | Sig. |
|---|---|---|---|
| Pretest | .842 | 27 | <.001 |
| Postest | .786 | 27 | <.001 |

Referring to table 3, the study conducted a normality analysis using the shapiro-wilk approach. Considering that the sample size in this study was less than 30 participants, the results of the shapiro-wilk test were considered for analysis. The pretest score of the initial reading assessment of the experimental group showed a significance value (sig) of $0.001 < 0.05$, which indicates that the data does not follow a typical distribution pattern. Similarly, the posttest results also produced a significance value (sig) of $0.001 < 0.05$, which confirmed that the posttest scores were also not normally distributed.

The Wilcoxon test was applied as the appropriate statistical method because the data did not follow a normal distribution. In this case, the Wilcoxon test is used to assess whether there is a meaningful difference between two interconnected samples, the pretest and posttest scores. This test is based on two hypotheses: the null hypothesis ($H_0$), which states that there is no significant difference in initial reading skills before and after using word card learning media, and the alternative hypothesis ($H_1$), which states that there is a significant difference in reading skills before and after treatment using word card media.

The decision-making criteria in this test are as follows: If the significance value (sig) is more significant than 0.05, the null hypothesis ($H_0$) is accepted, meaning there is no significant difference between the conditions before and after treatment. Conversely, if the significance value (sig) is less than 0.05, $H_0$ is rejected, indicating a significant change in students' initial reading skills after treatment. The Wilcoxon test results are shown in the table below.

**Table 4.** Analysis Results Using the Wilcoxon Test

| Postest-Pretest | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| | Negative Ranks | 0[a] | 0.00 | 0.00 |
| | Positive Ranks | 16[b] | 0.850 | 136.00 |
| | Ties | 11[c] | | |
| | Total | 27 | | |

a. Postes < Pretest
b. Postes > Pretest
c. Postes = Pretest

Table 4 shows that there are no students who show lower post-test scores compared to their pre-test scores (negative ranking), while sixteen students show an increase in their post-test scores compared to their pre-test scores (favourable ranking), and 11 students have the same pre-test score as their post-test score. This indicates improved students' reading ability after treatment using word card learning media. Furthermore, the data was processed using the Wilcoxon Test as follows.

**Table 5.** Analysis Results Using the Wilcoxon Test

| | Postes-pretest |
|---|---|
| Z | -3.525[b] |
| Asymp.Sig.(2 tailed) | <.001 |

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks

Table 5 presents the results of the statistical analysis. The analysis produced a significance value 0.001 with a negative rank of -3.525. Given that the significance value (Sig) is below 0.05, the null hypothesis ($H_0$) is rejected, while the alternative hypothesis ($H_1$) is supported. This shows a significant difference in students' early reading ability before and after using word card learning media. The research findings show that using word cards effectively improves the early reading skills of students in grade 1B of SDN Purwadadi 1.

Based on the results of the research that has been carried out, the average pretest score for students' early reading ability is 58.96, with a standard deviation of 34.914. This score is obtained when students have not received learning treatment with a combination of word card learning media. As for the posttest results, after students received early reading learning treatment using word cards, the average score was 65.11, with a standard deviation of 36.806. The average score increased from the pretest to the posttest because students participated in learning with a positive feeling. In addition, they used word cards as a game to arrange words into simple sentences in a fun way. This aligns with the opinion Febrita & Ulfah (2019) that this statement emphasizes that using effective, accurate, and engaging learning media can encourage students to become more interested in learning while psychologically impacting their learning experience. This opinion is reinforced by research results Haifa et al. (2022), which state that word cards designed for elementary school students can help them understand and remember each letter alphabetically, thus improving their reading ability. Word cards involve students reading and collaborating to form simple words or sentences. This medium is concrete, easy to use, and fun.

The application of word card-based learning media for early reading instruction in first-grade students at Purwadadi 1 State Elementary School in Subang Regency, West Java, has been carried out effectively and attractively. This study was conducted in an IB class with 27 students. The results showed an increase in students' early reading ability of 10.43%, as seen from the pretest score before the intervention and the posttest score after using word card learning media. This increase is significant, given the relatively short duration of the intervention. This shows that using word cards can improve students' early reading ability.

This improvement aligns with the previous study conducted by Rahayu & Wardhani (2023) using the one-group pretest-posttest method, reported an increase in students' reading ability of 25.23 points. The average pretest score was 53.08, which increased to 78.31 on the posttest. These findings show that learning with word cards improves early reading skills more than learning without them. The findings of this study also corroborate those of Robiatul & Basri (2023), who found that word cards can effectively improve letter recognition in children by allowing them to organize alphabet cards and read each letter and word aloud in front of other groups. Integrating word card media into learning can promote student activeness, which has a positive impact on the success of learning, which has increased significantly, mainly when word card learning media is applied to children of kindergarten and elementary school age.

The data analysis in this study confirms that word card media significantly affects students' initial reading ability, as evidenced by the Wilcoxon test results, which show Sig <0.05. These results lead

to the rejection of $H_0$ and the acceptance of $H_1$, which shows a significant difference in early reading skills before and after the intervention. In addition, this is to the results Saadah et al. (2024) a quasi-experimental study conducted at SDN Surananggala, involving class 1A as the control group and class 1B as the experimental group. The initial pretest results showed an average score of 60.20 for the control group and 65.80 for the experimental group. After the intervention, the average score of the control group increased to 66.33, while the experimental group experienced a more significant increase, reaching an average score of 76.20. Inferential analysis shows that the SAS approach, supported by word card media, effectively improves students' early reading ability. In line with this, the results of the research Novelita (2023) state that word cards can help improve students' early reading skills by increasing student activity and making their knowledge and understanding broader, more precise, and more memorable.

The results of this study show that the use of word card learning media significantly improves early reading skills among first grade students. In addition, students become more active in learning using word cards. Picture word cards can create an interactive and fun learning environment, similar statement was made by stating that picture word card media improves first-grade students' reading comprehension, interest, and progress while creating an interactive learning environment (Bakhtiar, 2024). Word cards also help students recognize letters, vocabulary, and images, develop right-brain memory, and expand their vocabulary (Pangesthika et al., 2021). It can be concluded that word cards are an effective learning medium in improving the reading ability of elementary school students, especially in introducing letters and early reading skills, which can increase students' motivation and enthusiasm to participate in learning (Widana et al., 2023).

Teachers create a comfortable learning atmosphere by combining word cards with various educational games. Students use word cards for activities such as arranging syllables into simple words, matching initial letters with pictures of animals, and collaborating with classmates to form simple sentences. In addition to improving students' early reading skills, syllable cards also increase students' active participation in learning. Similarly, based on the study's results Saleh & Abdullah (2020) using word cards in grade 3 of Bajo State Elementary School increased students' pre-writing competence and enjoyment of learning, reaching a graduation rate of 95%. The result Amini et al. (2023) was stated by those who stated that using paired card media significantly increased student activity in elementary school, reaching 89% (27 students) actively involved during the learning process. Using word card learning media at the early of reading learning for elementary school students allows students to participate directly and actively in learning activities. When students are active and enthusiastic in participating in learning, they will indirectly achieve better learning success. This is because learning motivation affects student learning outcomes. In addition, teachers act as motivators, facilitators, and evaluators and also play an important role in applying word card learning media so that the teaching and learning process runs well and students enjoy participating in the learning process.

The results of this study indicate that the use of word card learning media plays an important role in improving the essential reading ability of first-grade elementary school students. This is evidenced in the learning outcomes obtained before and after the treatment. The learning outcomes show that the posttest score is higher than the pretest score. The findings of this study show that integrating word cards into reading lessons can effectively improve students' abilities in recognizing letters and forming syllables and in the ability of first-grade elementary school students to understand simple words. The results show that students who learn using word cards significantly improve letter recognition, syllable formation, and word comprehension. This conclusion is reinforced by statistical analysis, which reveals a significant improvement in reading scores after implementing word card-based learning. With the results of this study, word card learning media is appropriate for application to primary school students, especially first graders.

This study is limited by the absence of a control group, making it difficult to conclude that the observed improvements were solely due to the intervention. External factors may have influenced the results, suggesting that future research should include a control group to enhance internal validity. Despite these positive results, the study also identified several challenges. One of the main limitations is the time required for teachers to prepare and implement word card activities effectively. It is hoped that, in the future, teachers will be able to allocate more time to optimize the application of word card media. Additionally, some students still struggled with blending syllables, highlighting the need for additional teaching strategies to support struggling readers. This is due to the varying abilities of each student, necessitating teachers to be more observant in addressing the inequalities within the classroom. Furthermore, future research should explore the integration of digital word card media to increase accessibility and encourage active participation in the learning process. This aligns with the demands of the 4.0 era, where the integration of technology in education is essential. The use of digital media could contribute positively to primary school education, providing greater engagement and support for early reading development.

This study confirms that word card media significantly contributes to developing early reading skills among first graders. The use of this learning media has been shown to increase students' interest in reading, positively impacting their early reading abilities. By addressing implementation challenges and incorporating additional support strategies, this method has the potential to become an integral part of early literacy instruction in primary schools. Furthermore, the word card media learning method can serve as an effective tool to further enhance reading interest among primary school students.

## Conclusion

Based on the findings of this research, the early reading skills of first-grade students at SDN Purwadadi 1 were assessed before and after using word card media. The pre-test score was 58.96, reflecting their initial reading abilities. After using word card media, the post-test score increased to 65.11, indicating significant improvement. The hypothesis test using the Wilcoxon Test revealed an Asymp. Sig. Value of 0.001, less than the 0.05 threshold, rejecting the null hypothesis ($H_0$) and confirming that word card media significantly enhances students' early reading skills.

The study highlights that word card media effectively improves early reading proficiency and fosters greater student motivation. However, challenges such as the preparation time required by teachers and difficulties in blending syllables among some students were identified.For future research, it is recommended to include a control group to assess better the causal effect of word card media on early reading skills, addressing any external factors that may have influenced the results. Additionally, integrating digital word card media is recommended to enhance accessibility and increase student engagement, aligning with the educational needs of the 4.0 era. This study confirms the effectiveness of word card media in developing early reading skills. With further implementation and support, it can potentially become a key component in early literacy instruction at primary schools.

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