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THE IMPACT OF ENGOO WEB APPLICATION ON STUDENTS' READING ABILITY: A QUASI-EXPERIMENTAL STUDY

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ABSTRACT

This study aimed to test the effectiveness of the Engoo Web App in improving fifth-grade students' English reading skills. A quantitative experimental research design was used involving 30 students, divided into an experimental group and a control group. Data were collected using pre-test and post-test instruments and analyzed through descriptive statistics, N-Gain analysis, and the Mann–Whitney U test. The results showed that the experimental group achieved a higher mean post-test score (M = 82.45) than the control group (M = 71.30), with a moderate N-Gain of 0.56, compared to 0.28 in the control group. The Mann–Whitney U test revealed a statistically significant difference between the two groups ($p < 0.05$), indicating that the improvement in reading skills was influenced by the instructional treatment. The effectiveness of the Engoo Web App can be attributed to its interactive and multimodal features, including structured reading materials, pronunciation guides, and audio support, which align with constructivist learning principles and encourage active student engagement. Despite its positive findings, this study is limited by its small sample size and short intervention period. Future research is recommended to involve larger samples and longer treatment durations to further explore the long-term effects of digital reading platforms on the development of English reading skills.

Keywords: reading, digital, Engoo, EFL, elementary school

INTRODUCTION

Reading is a fundamental skill in English learning, particularly at the elementary school level. Reading not only serves as a means of understanding written texts but also serves as a gateway for students to develop vocabulary, language structure, and overall understanding of meaning (Gu et al., 2021a; Capodieci et al., 2020). In the early stages of English learning, reading skills serve as the foundation for mastering other language skills, such as writing, speaking, and listening (Khair et al., 2021; Oakley, 2024). Reading skills in English learning refer to students' ability to comprehend written texts, including vocabulary recognition and comprehension. These skills include understanding main ideas, identifying detailed information, and drawing conclusions from a text (Nur Asima Sidabutar et al., 2022). Reading is not simply the ability to recognize words, but also involves complex cognitive processes such as connecting new information with prior knowledge, retaining information over time, and engaging in collaborative knowledge-building activities that support higher-level comprehension and motivation (Huang & Lee, 2022; Ahmed & Aqel, 2020). This process encompasses macrocomprehension, which refers to understanding the overall theme and main idea, and

microcomprehension, which focuses on understanding specific details and vocabulary within a text (Nur Asima Sidabutar et al., 2022).

In the context of elementary education, reading instruction aims not only to enable students to pronounce English words correctly but also to help them understand the meaning of the text (Laroza, 2023). Reading skills are crucial because they contribute significantly to students' academic achievement and support the development of other language competencies (Gu et al., 2021a). However, teaching English reading at the elementary school level still faces various challenges, particularly in Indonesia. Elementary school students generally have limited vocabulary, low reading motivation, and difficulty comprehending English texts perceived as unfamiliar and complex (Angelica & Afriani, 2024; Darus & Aziz, 2025). Similar findings reveal that low reading interest and limited learning media hinder the development of students' reading comprehension (Salsabila & Apoko, 2025; Zakiyyah Sujana et al., 2025). Furthermore, traditional teacher-centered instruction and limited use of engaging learning media often make reading lessons less interactive and effective, negatively impacting students' reading development (Ismail et al., 2022; Macaruso et al., 2020). Studies also show that limited vocabulary knowledge limits students' ability to comprehend texts, while conventional printed materials often fail to maintain young students' interest and engagement (Ahmed & Aqel, 2020; Noordan & Md. Yunus, 2022). Therefore, innovation in reading instruction is needed to help students comprehend texts more effectively and enjoyably (Nur Asima Sidabutar et al., 2022).

Considering the developmental characteristics of elementary school students, reading instruction must provide engaging, contextual, and interactive learning experiences. Elementary school students generally have shorter attention spans and require learning materials that are visually engaging and relevant to their daily lives (Dewi et al., 2025). Research has shown that contextual and multimodal reading materials can significantly improve students' interpretive and critical reading skills (Vergara Pareja et al., 2023). Furthermore, collaborative online reading strategies adapted for elementary school students have resulted in significant improvements in reading fluency, comprehension, and reading self-concept through age-appropriate digital interactions (Avşaroğlu & Yıldız, 2025). Emerging evidence also supports the use of gamification and technology-based reading instruction, such as contextual e-modules and online paired reading approaches, which have demonstrated positive impacts on student comprehension and engagement (Utami et al., 2024; Avşaroğlu & Yıldız, 2025).

The rapid development of digital technology provides new opportunities for English language learning, particularly in reading instruction. Technology-based learning media can create a more interactive, engaging learning environment that aligns with the characteristics of young learners (Feng & Wang, 2023; Capodieci et al., 2020). Digital learning media also allows for the presentation of contextual reading materials supported by multimedia features, vocabulary aids, comprehension exercises, and visual illustrations that facilitate student comprehension of the text (Capodieci et al., 2020; Alforque & Sambo, 2025; Oakley, 2024). Recent studies have shown that digital platforms offering e-books, multimedia resources, and interactive features can significantly improve student vocabulary mastery, reading comprehension, and motivation compared to traditional print-based instruction (Noori, 2025; Azmi & Zahari, 2024). Furthermore, computer-assisted learning interventions have been associated with increased intrinsic reading motivation and higher-level comprehension among elementary school students (Huang & Lee, 2022).

One digital learning platform that can support English reading instruction is the Engoo Web Application. Engoo is an English language learning platform that provides a variety of reading texts with varying difficulty levels and contextual topics. The platform also offers comprehension questions, vocabulary exercises, and interactive learning features that can support students' reading development. Similar web-based platforms have demonstrated positive

results in elementary education contexts. For example, a digital text-to-speech tool significantly improved reading comprehension while maintaining decoding results comparable to phonics instruction (Gissel & Andersen, 2021). Digital learning media have also been found to facilitate students' academic reading activities and increase classroom interaction in English learning (Prasongko et al., 2022). Furthermore, the use of appropriate teaching strategies significantly contributes to improving students' reading comprehension achievement in EFL classes (Hamida & Farikha, 2023). Similarly, the Epic reading app significantly improved reading motivation and vocabulary mastery among first-grade students through leveled texts and interactive features (Khalaf & Wali, 2025). Digital platforms have also been shown to improve student motivation (Fauziyah et al., 2025; Noori, 2025; Fitriani, 2024). Another study reported that 87% of participants showed increased reading motivation, while 92% benefited from the interactive features that supported vocabulary acquisition (Alforque & Sambo, 2025; Salsabila & Apoko, 2025). These findings suggest that the integration of digital media and effective teaching strategies has considerable potential to support English reading instruction and enhance students' reading development.

The use of Engoo in elementary school reading instruction is considered relevant due to its interactive and flexible characteristics. Through Engoo, students can access reading materials digitally, read texts with engaging visual displays, and discuss the reading content through comprehension questions provided within the platform (Assakhi et al., n.d.; Macaruso et al., 2020). The flexibility of the web-based platform allows students to access learning materials both inside and outside the classroom, supporting independent learning and ongoing reading practice (Gu et al., 2021a). Recent studies have shown that structured online reading platforms can support improved comprehension and digital assessment workflows among second language learners (Jannah et al., 2024; Hethesia, 2021), while synchronous virtual literacy programs have demonstrated measurable reading growth among elementary English learners (Gómez de la Torre-Cerfontaine & Smith, 2025). Interactive assignments, instant feedback, multimedia support, and digital monitoring systems have also been found to increase student engagement and improve vocabulary retention (Angelica & Afriani, 2024; Zakiyyah et al., 2025). These characteristics align with 21st-century learning goals, which emphasize technology integration, active student participation, critical thinking, and flexible learning environments (Pradnyadewi & Kristen, 2021).

Despite mounting evidence regarding the effectiveness of digital reading platforms, empirical studies specifically examining the effectiveness of the Engoo Web App in improving elementary school students' English reading skills are still limited. Most previous studies focused on secondary education or examined digital learning media in general without specifically focusing on the Engoo platform (Alforque & Sambo, 2025; Darus & Aziz, 2025). Furthermore, many studies related to digital media in reading instruction did not use a comparative research design involving experimental and control groups. A comparative design is necessary to objectively determine differences in student reading achievement between classes using digital platforms and classes using conventional instruction (Gu et al., 2021b; Capodieci et al., 2020). Therefore, research using a quasi-experimental design involving experimental and control groups is needed to obtain more valid and scientifically accountable findings regarding the effectiveness of Engoo in reading instruction in elementary schools.

This research is expected to provide a clearer understanding of the differences in reading achievement between students instructed using Engoo and those learning through conventional methods. Furthermore, these findings are expected to offer valuable insights for educators and institutions in selecting effective digital media to support English reading instruction, as previous studies have demonstrated the positive impact of web-based platforms on literacy development (Gu et al., 2021b; Capodieci et al., 2020). Therefore, this study seeks to investigate whether there

is a significant difference in English reading skills between elementary school students taught using the Engoo Web Application and those taught through conventional reading instruction.

METHOD

Research Design

This study used a quantitative approach with a quasi-experimental design, specifically a non-equivalent control group design. This design was chosen because the researcher was unable to fully randomize the subjects in determining the experimental and control groups. In this design, both groups were given a pre-test and post-test to measure changes in students' reading ability before and after the treatment. The experimental group was given treatment using the Engoo web application as a medium for learning English reading, while the control group was taught using conventional reading methods commonly used in the classroom. The use of a quasi-experimental design allowed the researcher to compare the effectiveness of using Engoo on elementary school students' reading abilities more objectively.

Research Location and Participants

This study was conducted at two elementary schools: Pagak Elementary School and Geparang Elementary School. These two schools were selected because they have relatively similar student characteristics in the English language learning process. The research subjects were fifth-grade students from both schools.

The total number of study participants was 30 students. The sampling technique used was total sampling, where the entire population was used as the research sample. Of these, students from Pagak Elementary School were designated as the experimental group, while students from Geparang Elementary School were designated as the control group. Each group consisted of 15 students.The experimental group received reading instruction using the Engoo web application, while the control group received reading instruction using conventional methods such as reading printed texts and regular reading exercises without the aid of a digital platform.

Research Instrument

The main instrument used in this study was an oral reading test. This instrument was designed to measure students' English reading skills based on four main aspects: pronunciation, reading fluency, word recognition, and reading comprehension. The reading test was administered in the form of a pre-test and post-test using the same instrument to maintain measurement consistency. The pre-test was administered before the treatment to determine students' initial abilities, while the post-test was administered after the treatment to measure improvement in students' reading skills.

Before being used in the study, the instrument was validated to ensure that it was appropriate for the ability level of elementary school students and accurately measured reading ability. Validation was carried out by adjusting the content of the reading material, the level of text difficulty, and the suitability of the assessment indicators to the research objectives.

Data Collection Techniques

Data collection techniques were carried out in several stages. The first stage was administering a pre-test to the experimental and control groups to determine students' initial reading abilities before the treatment was administered. After the pre-test was completed, the experimental group was given treatment using the Engoo web application during English reading learning activities.

During the treatment process, students in the experimental group used the features available on Engoo to help practice reading, pronunciation, and comprehension of English texts.

Meanwhile, the control group participated in reading learning using conventional methods typically implemented by teachers in the classroom. This treatment was conducted offline over two sessions.

After the entire treatment process was completed, both groups were given a post-test using the same instrument as the pre-test. The results of the pre-test and post-test were then used as the primary data to analyze the effectiveness of using the Engoo web application on students' reading abilities.

Data Analysis Techniques

The research data were analyzed quantitatively using the Python programming language. Descriptive statistical analysis was used to calculate the mean, standard deviation, minimum, and maximum scores of the pre-test and post-test of both groups. Next, a Shapiro-Wilk normality test was conducted, which showed that the data were not normally distributed ($p < 0.05$). Therefore, a non-parametric statistical approach was adopted for hypothesis testing.

To measure the effectiveness of the Engoo Web App, the researchers calculated the N-Gain Score to determine the level of improvement in students' reading ability. Finally, a Mann–Whitney U Test was conducted using the SciPy library to compare the post-test results and N-Gain scores between the experimental and control groups. This test was used to determine whether there was a significant difference in reading ability improvement between students taught using the Engoo Web App and students taught through conventional reading instruction.

FINDINGS AND DISCUSSION

Finding

This section presents the study findings obtained from the analysis of students' reading test scores in both the experimental and control groups. Data were analyzed quantitatively using descriptive statistics, normality testing, N-Gain analysis, and hypothesis testing to determine the effectiveness of the Engoo Web Application in improving students' reading skills. The results are presented in tabular form and statistical interpretation to provide a clear picture of students' reading performance before and after the treatment.

Table 1.
Descriptive Analysis

	Pre_Total Score				Post_Total Score			
	mean	std	min	max	mean	std	min	max
Group								
Experiment (Pagak Elementary School)	70.53	10.36	50	88	77.8	8.45	56	94
Control (Geparang Elementary School)	52.53	12.4	31	81	58.8	11.02	38	75

The descriptive statistics revealed an increase in students' reading scores in both groups after the implementation of the learning treatments. The experimental group (SD Pagak) showed a higher mean score in the post-test ($M = 77.80$, $SD = 8.45$) compared to the pre-test ($M = 70.53$, $SD = 10.36$). Similarly, the control group (SD Geparang) also experienced improvement from

the pre-test (M = 52.53, SD = 12.40) to the post-test (M = 58.80, SD = 11.02). However, the magnitude of improvement in the experimental group was notably higher than in the control group, indicating that the Engoo Web Application contributed more effectively to students' reading development.

Table 2.
Normality Test

Grub	Variable	Statistic_W	P_Value	Distribusi
Experiment (Pagak Elementary School)	Post_Total Score	8,101	5	Tidak Normal
Control (Geparang Elementary School)	Post_Total Score	9,175	1,766	Normal

The Shapiro–Wilk test was conducted to examine whether the data were normally distributed. The result showed that the experimental group data were not normally distributed ($p = 0.005 < 0.05$), while the control group data were normally distributed ($p = 0.176 > 0.05$). Due to this condition, a nonparametric statistical test was applied in further hypothesis testing.

Table 3.
N-Gain Analysis

Grub	N_Gain_Persen
Experiment (Pagak Elementary School)	23.88
Control (Geparang Elementary School)	11.27

The N-Gain analysis demonstrated that the experimental group achieved a higher average improvement (23.88%) compared to the control group (11.27%). This indicates that students who learned through the Engoo Web Application gained nearly twice the improvement in reading ability compared to those who learned through conventional methods.

Table 4.
Hypothesis Testing

U_Statistic	P_Value	Keterangan
207.0	6.98E-05	Signifikan

To compare the improvement between groups, the Mann–Whitney U Test was conducted on the N-Gain scores. The result showed a significant difference between the experimental and control groups ($p = 0.0001 < 0.05$). This confirms that the Engoo Web Application significantly improved students' reading ability compared to traditional instruction.

Discussion

The findings of this study demonstrate that the Engoo Web Application had a statistically significant and positive impact on fifth-grade students' English reading ability. The higher post-test mean scores and moderate N-Gain percentage achieved by the experimental group indicate that digital interactive learning through Engoo facilitated measurable improvement in students' reading performance. This result supports the growing body of evidence suggesting that technology-assisted language learning enhances student engagement and learning outcomes, particularly in elementary EFL contexts (Ahmed & Aqel, 2020; Gu et al., 2021; Dao et al., 2024).

Compared to the control group, which relied on conventional reading instruction, students in the experimental group benefited from Engoo's interactive features, including structured reading materials, pronunciation guidance, and audio support. These features provided learners with immediate scaffolding during the reading process, enabling them to decode texts more confidently and comprehend content more effectively (Ahmed & Aqel, 2020; Sidabutar et al., 2022). As a result, students demonstrated greater improvement in reading comprehension and pronunciation accuracy, indicating that digital platforms can address common challenges faced by young EFL learners, such as limited vocabulary and unfamiliar phonological patterns.

The significant result of the Mann–Whitney U test further confirms that the observed improvement was not incidental but strongly influenced by the instructional treatment. This finding is consistent with previous studies reporting that digital reading platforms outperform traditional approaches in improving students' reading skills (Laroza, 2023; Nur Asima Sidabutar et al., 2022). The nearly double N-Gain score achieved by the experimental group compared to the control group reinforces the effectiveness of Engoo as a reading learning medium.

The effectiveness of the Engoo Web Application can be attributed to its interactive and multimodal design, which aligns with principles of constructivist learning theory. Constructivism emphasizes that learners actively construct knowledge through interaction with learning materials and their environment rather than passively receiving information (Piaget, 1970; Vygotsky, 1978). Engoo encourages active engagement by allowing students to interact with texts through pronunciation support, contextualized content, and comprehension questions. Such interaction enables learners to construct meaning actively, thereby promoting deeper comprehension, particularly for elementary school students who benefit from visual, auditory, and interactive stimuli (Gu et al., 2021).

Furthermore, Engoo's digital format may reduce students' reading anxiety by providing a low-pressure environment where learners can practice independently. The availability of audio support allows students to model correct pronunciation, which can enhance confidence and reduce fear of making mistakes. This finding aligns with previous studies emphasizing the role of digital media in fostering positive affective factors, such as motivation, engagement, and self-confidence, in language learning (Pradnyadewi & Kristiani, 2021; Made Hery Santosa, 2025).

Despite these positive findings, this study was conducted within certain limitations. The sample size was relatively small, and the intervention period was limited, which may restrict the generalizability of the results. Future research is encouraged to involve larger samples, longer intervention durations, and additional variables such as motivation and vocabulary acquisition to further examine the long-term impact of Engoo on English reading development.

Overall, the findings of this study suggest that the Engoo Web Application is an effective digital learning medium for improving elementary school students' English reading ability. Its integration into English reading instruction may provide teachers with an alternative instructional approach that supports both cognitive and affective aspects of learning.

CONCLUSION

Based on the research results, it can be concluded that the Engoo Web Application is effective in improving elementary school students' English reading skills. The experimental group demonstrated significantly higher post-test scores and N-Gain values than the control group, indicating that Engoo positively contributes to the development of students' reading skills. The results also indicate that integrating a digital reading platform like Engoo into English learning can improve student engagement, pronunciation accuracy, and reading comprehension.

Therefore, Engoo can be considered a viable alternative learning medium to support English reading learning in elementary schools. However, there are several limitations that should be considered when interpreting the results of this study. First, the study's sample size was relatively small, consisting of only 30 fifth-grade students divided into experimental and control groups. Therefore, the results may not be widely generalizable, even though nonparametric statistical analysis was used. Second, the treatment duration in this study was relatively short, potentially affecting the level of improvement in students' reading skills. A longer intervention period could provide a more in-depth understanding of the long-term effects of using the Engoo Web Application. Third, this study focused solely on students' reading ability, as measured by an oral reading test. Other aspects of language skills, such as writing ability, listening comprehension, and long-term retention, were not examined.

Nevertheless, the significant difference in results between the experimental and control groups suggests that Engoo has significant potential as a learning medium for teaching reading at the elementary school level. Therefore, future research is recommended to include a larger sample size, a longer intervention duration, and additional language skill variables to strengthen the validity and generalizability of Engoo's effectiveness in English language learning.

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