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THE EFFECTIVENESS OF WORDWALL BASED LEARNING TO STUDENTS READING SKILLS AT FOURTH GRADE IN PRIMARY SCHOOL

Ikhwan Dzikrullah
STKIP PGRI Bangkalan
e-mail: ikhwandikrullah@gmail.com

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ABSTRACT

This research is motivated by the low English sentence reading skills and the use of monotonous teaching methods by teachers at the elementary school level. The focus of this research problem is directed at testing the effectiveness of the use of digital game-based learning media Wordwall on improving students' reading skills. Using a quantitative approach with a quasi-experimental design in the form of a one-group pretest-posttest, the important stages of the research were carried out without a control group but rather comparing the conditions of the subjects before and after being given treatment. Data were collected from 24 students of grade IV A UPTD Lajing 2 Bangkalan as a saturated sample through a reading ability test instrument that has been tested for validity and reliability. The results of inferential data analysis assisted by the SPSS program showed a significant jump in performance, where the average student score increased from 58.67 in the pre-action session to 80.50 in the post-action session. Hypothesis testing through a paired-sample t-test produced a significance figure of 0.000 less than 0.05, indicating rejection of the null hypothesis. The research's main conclusion confirms that the use of Wordwalls has proven effective and has a significant positive impact on students' visual literacy skills. This interactive medium successfully boosted pronunciation accuracy, vocabulary expansion, and understanding of foreign sentence structures in an adaptive and enjoyable way.
Keywords: *Wordwall, Students' Reading Skills*

ABSTRAK

Penelitian ini dilatarbelakangi oleh rendahnya keterampilan membaca kalimat bahasa Inggris serta penggunaan metode mengajar guru yang masih monoton di tingkat sekolah dasar. Fokus masalah dalam riset ini diarahkan pada pengujian efektivitas penggunaan media pembelajaran berbasis gim digital Wordwall terhadap peningkatan keterampilan membaca (*reading skills*) peserta didik. Menggunakan pendekatan kuantitatif dengan desain eksperimen semu berbentuk *one-group pretest-posttest*, tahapan penting penelitian dijalankan tanpa kelompok kontrol melainkan membandingkan kondisi subjek sebelum dan sesudah diberikan perlakuan. Data dihimpun dari 24 siswa kelas IV A UPTD Lajing 2 Bangkalan sebagai sampel jenuh melalui instrumen tes kemampuan membaca yang telah teruji validitas serta reliabilitasnya. Hasil analisis data inferensial berbantuan program SPSS menunjukkan lompatan performa yang signifikan, di mana nilai rata-rata *mean* siswa meningkat dari 58,67 pada sesi pra-tindakan menjadi 80,50 pada sesi pasca-tindakan. Pengujian hipotesis melalui *paired-sample t-test* menghasilkan angka signifikansi sebesar 0,000 kurang dari 0,05 yang menandakan penolakan terhadap hipotesis nol. Simpulan utama riset menegaskan bahwa pemanfaatan Wordwall terbukti efektif memberikan pengaruh positif yang nyata terhadap kemampuan literasi visual siswa. Media interaktif ini sukses mendongkrak ketepatan pelafalan, perluasan kosakata, serta pemahaman struktur kalimat asing secara adaptif dan menyenangkan.

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Kata Kunci: *Wordwall, Keterampilan Membaca Siswa*

INTRODUCTION

In English language instruction, particularly within the domain of reading development, a child's text comprehension relies heavily on a systematically structured instructional process supported by appropriate pedagogical media. Reading represents a foundational literacy pillar that is absolutely vital for cultivating students' cognitive intelligence, lexical competence, and analytical thinking skills at every primary grade level. As one of the four core macro language skills related to written communication alongside listening, speaking, and writing, the master of reading requires consistent exposure and active practice within a structured academic environment. Meaningful reading goes far beyond the mechanical decoding of printed words, as it fundamentally demands that the reader internalizes and interprets the underlying message conveyed by the author (Betül, 2023; Kidlo et al., 2023). Consequently, the quality of instructional resources plays a decisive role in educational success because scientifically designed materials that align with the core curriculum can drastically maximize the efficiency of the teaching process, allowing young learners to navigate global information with ease (Abenes et al., 2023; Affandi, 2025; Rajiani et al., 2023; Yunus et al., 2024).

However, a profound discrepancy exists between this conceptual ideal and the objective reality observed within contemporary elementary classrooms regarding foreign language proficiency. The ongoing national curriculum transformation mandates that young learners should actively engage with texts, possess strong decoding skills, and develop an autonomous reading interest through student-centered instruction. Unfortunately, empirical evidence from the field reveals that English instruction often fails to achieve these optimal benchmarks due to a systemic reliance on obsolete, non-interactive teaching paradigms. When instructors fail to integrate digital technology and creative instructional tactics, the classroom environment inevitably becomes rigid and monotonous, thereby stifling the psychological curiosity of young learners. This lack of pedagogical innovation directly triggers a decline in intrinsic motivation, leaving students passive and disconnected from the subject matter. Without an attractive external stimulus to foster a deeper cognitive connection with the language, elementary school children frequently develop a persistent academic anxiety toward reading, which ultimately hinders their long-term scholastic performance and basic communication skills (Anggraini et al., 2025; Ferrer, 2023; Newell et al., 2025; Vaughn et al., 2021).

To bridge this wide pedagogical chasm, modern educational technology offers a viable alternative solution through interactive web-based applications such as the Wordwall platform. From a theoretical perspective, this digital ecosystem allows educators to transform conventional, static literacy exercises into dynamic, gamified learning resources such as customizable quizzes, crosswords, and matching games. By merging vibrant visual stimuli, animations, and immediate feedback mechanisms, this platform directly addresses the diverse learning modalities of digital natives, making the absorption of abstract linguistic concepts highly efficient. Utilizing such creative tools effectively reduces the cognitive load of young learners while simultaneously shifting the instructional paradigm from passive consumption to active, playful participation. This modern methodology ensures that vocabulary acquisition and phonetic practice become deeply embedded in the students' long-term memory. Consequently, gamified educational technology does not merely serve as a superficial tool for entertainment, but rather functions as a strategic instructional catalyst that fosters a collaborative, rewarding,

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and highly meaningful language experience (Ameen, 2026; Farzona & Nargiza, 2025; Saptiany et al., 2024; Zukhra, 2025).

This operational divergence and the resulting decline in literacy interest were clearly observed during a preliminary investigation conducted at UPTD SDN Lajing 2 Bangkalan in the 2026/2027 academic year. Based on the diagnostic data collected in the classroom, the subjek penelitian, which consisted of the fourth-grade students, consistently exhibited deficient English reading skills and severe pronunciation errors. Throughout the daily instructional hours, the subjek penelitian appeared highly distracted, passive, and completely disengaged, largely because the teacher relied exclusively on static textbooks and repetitive lecture methods. This monotonous environment caused a massive deficit in reading fluency, as the fourth-grade children could neither articulate basic English sentences correctly nor comprehend the vocabulary meanings. This critical academic situation at UPTD SDN Lajing 2 Bangkalan in the 2026/2027 academic year serves as an urgent indicator that the school's literacy framework requires an immediate, tactical intervention through digitized materials to restore student engagement and save their foundational language development from further stagnation.

Grounded in these pervasive empirical challenges, this scientific inquiry establishes its definitive novelty by providing a rigorous processual analysis of digital gamification within an underprivileged elementary setting. The innovation of this study lies in its structured implementation of Wordwall-based learning to systematically reconstruct the reading mechanics and intrinsic motivation of the fourth-grade subjek penelitian at UPTD SDN Lajing 2 Bangkalan in the 2026/2027 academic year. While past literature has extensively verified the general benefits of digital applications through quantitative pre-test and post-test metrics, this study bridges an existing research gap by thoroughly documenting the practical strategies, adjustments, and behavioral shifts that occur during the actual implementation process. Through this comprehensive qualitative exploration, the theoretical output of this research is highly expected to provide an original blueprint and strategic recommendations for primary school educators navigating the digital era. Ultimately, this study aims to prove that transforming traditional reading lessons into an active, tech-infused experience can successfully cultivate highly proficient and enthusiastic young readers.

RESEARCH METHODS

Research methodology is a critically important field in the world of science. This field specifically focuses on the in-depth study of various methods, techniques, and procedures that are carried out in a systematic and structured manner. Its purpose is to help researchers discover, collect, and uncover accurate and reliable scientific truths through proper and proven processes (Ali et al., 2022). The type of research used in this study is quantitative research employing an experimental method, specifically a pre-experimental design of the one-group pretest-posttest type. Quantitative research is a type of scientific research conducted systematically to study components, phenomena, and their relationships. Some experts also define it as the process of gaining knowledge through numerical data (Purwanza et al., 2022).

Table 1. Research Design

Pretest	Treatment	Posttest
O1	X	O2

Description

O^1 : Pretest before treatment.

X : The treatment for the experimental group was to apply the Wordwall learning media.

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O^2 : Posttest after treatment.

In the research design described above, all students at UPTD Lajing 2 Bangkalan constitute the population of this study, and a saturated sample was used; thus, the entire Class 4A, consisting of 24 students, served as the research sample.

The instruments used in this study consist of observation, application, and questions. This study involves two types of variables: independent and dependent variables. In this study, Wordwall serves as the independent variable, while reading skills serve as the dependent variable. This study uses a data analysis method involving validity testing. Validity testing is conducted to determine whether each measurement tool (instrument) is valid or not. Decisions are made based on the following criteria: a) If the rtabel value is greater than 0.05, the instrument is considered valid. b) If the value is less than 0.05, the instrument is considered invalid.

Reliability tests were conducted on all the instruments developed to determine whether they were reliable or not. The decision was based on the following criteria: a) if alpha > 0.05, the instrument is considered reliable; b) conversely, if alpha < 0.05, the instrument is not reliable. A normality test is a test used to determine whether the results of a questionnaire administered to students are normally distributed or not. This test uses the Kolmogorov-Smirnov test in SPSS version 21, with the following criteria: a) If the significance value is < 0.05, the distribution of the data is considered non-normal. b) If the significance value is > 0.05, the distribution of the data is considered normal. A paired t-test was conducted to determine whether there was a difference between the pre-test and post-test results. The researcher used SPSS software, with decisions based on the following criteria: a) If the significance level (two-tailed) is < 0.05, there is a significant effect on the initial test data and the final test data. b) If the significance level (two-tailed) is > 0.05, there is no significant effect on the initial and final data.

RESULTS AND DISCUSSION

Result

This study is titled “The Effectiveness Of Wordwall Based Learning To Students Reading Skills At Fourth Grade In UPTD Lajing 2 Bangkalan”. The study was conducted to determine the effect of WordWal on students’ reading skills at UPTD Lajing 2 Bangkalan. The data in this study were collected using an experimental method, specifically a pre-experimental design of the one-group pretest-posttest type. This method employs a pretest and a posttest to compare conditions before and after the Wordwall intervention was administered to the students.

The researcher conducted a pilot test of the assessment instrument at UPTD Lajing 2 Bangkalan on April 14, 2026, in Class 4B, which had 24 students. The assessment instrument used in this study consisted of questions designed to measure students’ reading skills, with 15 items to be analyzed using validity and reliability tests. Subsequently, a prerequisite test will be conducted using 10 validated items at UPTD Lajing 2 Bangkalan on April 15, 2025, to administer pre-tests, treatment, and post-tests in Class 4A with 24 students; this study will also perform normality tests and paired-sample t-tests.

1. Instrument Validation
   a. Validity Test

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Table 2. Results of the reading skills validity test

No. Item	r_{xy}	r_{table}	Description
1	0,744	0,404	Valid
2	0,767	0,404	Valid
3	0,406	0,404	Valid
4	0,742	0,404	Valid
5	0,421	0,404	Valid
6	0,716	0,404	Valid
7	0,458	0,404	Valid
8	0,503	0,404	Valid
9	0,668	0,404	Valid
10	0,742	0,404	Valid
11	0,201	0,404	Invalid
12	0,767	0,404	Valid
13	0,531	0,404	Valid
14	0,695	0,404	Valid
15	0,445	0,404	Valid

Based on table 2 the results of the validity test of students' reading skills, which was conducted using 15 items, only 14 items were valid and 1 item was invalid. However, this study used only 10 items.

b. Reliability Test

Table 3. Results of the reading skills

Reliability Statistics

Cronbach's Alpha	N of Items
,877	14

Based on table 3 Reliability Statistics, the Cronbach's Alpha value of 0.877 is greater than the critical value of 0.404, which means that the items in the instrument are reliable.

2. Prerequisite Test

a. Normality Test

Table 4. Results of the normality test for reading skills

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		24
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,95404999
Most Extreme Differences	Absolute	,069
	Positive	,068
	Negative	-,069
Kolmogorov-Smirnov Z		,340
Asymp. Sig. (2-tailed)		1,000

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Based on table 4 the results of the normality test in the table above, the significance value is 1.000 > 0.05; therefore, the research data is considered normally distributed.

b. Paired Sampel T-Test

Table 5. Results of the Paired Samples Statistics for reading skills

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	58,67	24	7,458	1,522
	Postest	80,50	24	5,942	1,213

Table 6. Results of the paired-sample t-test for reading skills

Paired Samples Test									
		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest - postest	-21,833	1,857	,379	-22,618	-21,049	-57,592	23	,000

The results of the paired-sample t-test in Table 5 above show a p-value of 0.000 < 0.05; therefore, it can be concluded that there is a significant effect of using Wordwall on students' reading skills.

Several tests conducted by researchers have demonstrated that there is a difference in reading skills before and after using the Wordwall platform, as shown in the chart below.

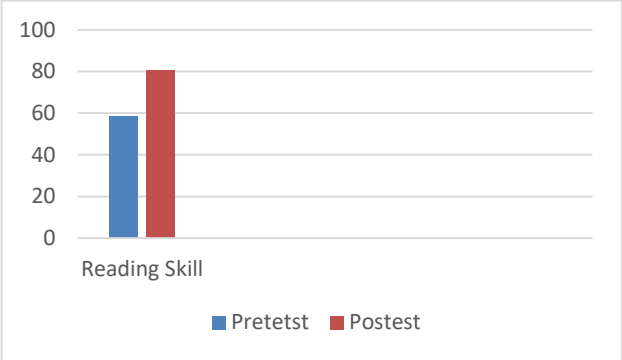

Figure 1. Average Pretest and Posttest Scores

The data above shows that there is a significant difference between the pre- and post-treatment periods. Therefore, it can be concluded that there was a statistically significant change in the reading skills of the 4th-grade students at UPTD Lajing 2 Bangkalan

Discussion

This research evaluated the impact of gamified digital media on primary education literacy by examining reading skills at UPTD Lajing 2 Bangkalan. Initial diagnostic assessments required a rigorous verification of the evaluation tool to guarantee academic rigor. During the pilot phase involving 24 participants, 15 assessment items underwent strict measurement. The statistical analysis showed that 14 items achieved an rxy value higher than the rtable baseline of 0.04, proving their validity. For instance, item 1 and item 2 reached high coefficients of 0.744 and 0.767, while item 11 failed with a value of 0.201. Following this process, 10 fully validated items were selected for the actual pedagogical intervention. Reliability testing yielded a Cronbach's alpha of 0.877, exceeding the 0.404 threshold. This internal consistency confirmed that the test instruments were stable and dependable for

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measuring student literacy changes. The careful selection of these evaluation items ensured that subsequent data collection remained free from measurement bias or structural errors (Asmayawati et al., 2025; Hatamlah, 2024; Li & Li, 2024; Quraishi et al., 2024).

Prerequisite statistical assumptions were addressed next to ensure the data met the criteria for parametric analysis. The research utilized the One-Sample Kolmogorov-Smirnov procedure to evaluate the distribution properties of the student scores. Utilizing data from 24 active participants, the statistical model generated an unstandardized residual mean of 0.0000000 with a standard deviation of 0.95404999. The maximum absolute extreme difference recorded was 0.069, with a positive divergence of 0.068 and a negative divergence of -0.069. The calculated Kolmogorov-Smirnov Z value came out to 0.340, leading to an asymptotic significance two-tailed value of 1.000. Because this probability value is greater than the standard alpha level of 0.05, the null hypothesis for non-normality was rejected. This outcome proves that the literacy test scores followed a normal distribution, justifying the use of a paired-sample t-test to evaluate the pedagogical intervention (Daoud et al., 2024; Ilyas et al., 2024; Lestari et al., 2023; Linawati et al., 2024).

The empirical core of this study focuses on the comparative performance metrics recorded before and after the gamified intervention. Prior to using the digital platform, the baseline literacy measurement showed a pretest mean score of 58.67 with a standard deviation of 7.458. After the instructional cycle with the digital tool, the posttest mean score rose to 80.50 with a standard deviation of 5.942. This shift represents a direct increase of 21.833 points in student reading performance. The standard error mean shifted from 1.522 during the baseline test to 1.213 in the final assessment. This reduction in variance indicates that student performance became more uniform following the intervention. The substantial increase in average scores demonstrates that integrating digital learning tools into the curriculum can noticeably improve reading comprehension and word recognition in young learners (Kiss et al., 2023; Ohle-Peters et al., 2025; Verhoeven et al., 2022; Wahyuni et al., 2025).

Inferential statistics provided a deeper look into the operational impact of the educational technology intervention. The paired-sample t-test evaluated the difference between the two testing periods over 23 degrees of freedom. The analysis produced a t-statistic of -57.592, reflecting a strong deviation from the null hypothesis. The standard deviation of the differences was 1.857, accompanied by a standard error mean of 0.379. At a 95% confidence interval, the lower boundary was -22.618 and the upper boundary was -21.049. The two-tailed significance value was 0.000, falling well below the standard 0.05 threshold. This mathematical outcome confirms that the higher posttest scores did not happen by chance. Instead, the results point to a clear causal link between the structured use of the digital application and the expansion of student literacy skills (Harmanto, 2021; Jelodari et al., 2025; Nurmahanani et al., 2021; Pratiwi et al., 2024; Wiboolyasarin & Jinowat, 2023).

The broader educational implications of these findings highlight how digital gamification can reshape modern literacy instruction. Moving from a traditional pretest score of 58.67 to an active posttest score of 80.50 shows that visual, interactive platforms help students understand syntax and sentence structures more effectively than static methods. However, certain limitations apply to these conclusions. Using a pre-experimental design with only one group means there was no separate control group to isolate history or maturation effects. Additionally, the small sample size of 24 fourth-grade students at UPTD Lajing 2 Bangkalan limits the ability to apply these findings to larger, more diverse student populations.

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Future research should use randomized control designs across multiple schools to see if these literacy gains remain consistent across different socioeconomic backgrounds.

CONCLUSION

This quantitative study concludes that the implementation of a gamified digital application has a significant positive impact on the English reading mechanics and sentence comprehension of fourth-grade elementary students. Transitioning from traditional textbook instruction, which often fosters academic anxiety and passive learning, the interactive web-based media successfully transforms static literacy exercises into a dynamic learning ecosystem. The structured use of visual stimuli, responsive animations, and immediate feedback loops effectively reduces the cognitive load of young learners while expanding their lexical competence. Furthermore, the collaborative classroom environment created by this digital tool plays a vital role in reinforcing correct pronunciation and word recognition. Ultimately, this digitized intervention proves to be an efficient pedagogical catalyst for establishing meaningful visual literacy and adaptive foundational language development in primary education.

Based on the methodological boundaries of this exploration, future researchers are strongly advised to expand the sample size by conducting randomized control trials across multiple educational clusters to establish a stronger baseline for comparative analysis. To isolate external variables such as maturation or history effects, forthcoming studies should utilize true experimental designs featuring an independent control group. Additionally, integrating web-based portfolio systems and investigating the long-term retention of lexical competence after an extended period would provide highly valuable pedagogical insights into mobile assisted learning. Future investigators are also recommended to examine modifying variables such as variations in initial reading fluencies, individual student backgrounds, or specific digital literacy levels among teachers to refine the predictive framework of gamified language curricula.

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