

Enhancing EFL Students' Reading Skills through the Web-Based Readlang Application

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ABSTRACT

This study investigates the effect of the web-based Readlang application on students' reading skills in the English Education Study Program at KH. A. Wahab Hasbullah University, Jombang. The rapid advancement of technology has changed the way students learn, particularly in language education, where digital tools such as Readlang offer interactive and flexible learning experiences. This study employed a quantitative approach using a pre-experimental design with a one-group pretest-posttest model. The participants consisted of 32 second-semester students of English Education who took a reading pretest before the treatment and a posttest afterward. Data were analyzed using the Wilcoxon Signed-Rank Test to determine the significance of differences between pretest and posttest results. The findings revealed that all students (100%) showed improvement in their reading performance after using Readlang. The pretest mean score of 72.66 increased to 82.38 on the posttest, with a Z value of -4.941 and a significance level of 0.000 ($p < 0.05$), indicating a statistically significant improvement. This result confirms that the Readlang application effectively enhances students' reading comprehension, vocabulary mastery, and fluency. Furthermore, it supports the Web-Based Language Learning (WBLL) theory, which emphasizes the importance of integrating technology to promote engagement and understanding through authentic materials. The outcomes are also consistent with previous studies by Magfirah et al. (2022) and Sri Wahyuni (2023), which demonstrated similar positive impacts of web-based learning media on reading ability. In conclusion, the Readlang application proves to be an effective digital tool for improving students' reading skills and can serve as an innovative alternative medium for English language teaching and learning in the modern educational context.

Keywords: Readlang Application; Web-Based Learning; Reading Skill; Vocabulary Mastery; English Education

INTRODUCTION

The rapid advancement of digital technology has significantly influenced the field of education, particularly in language learning (Rahmati et al., 2021). Reading, as one of the core skills in English acquisition, plays a crucial role in developing students' comprehension, critical thinking, and academic performance. However, many students still face difficulties in understanding texts, especially in terms of vocabulary mastery, identifying main ideas, and achieving reading fluency. These challenges indicate an urgent need for more effective and interactive learning media that align with the demands of the digital era.

Recent studies have shown that web-based learning tools can enhance students' reading skills. For example, Sulistianingsih et al. (2021) found that web-based learning environments improve students' engagement and comprehension through interactive features and flexible access to learning materials. Similarly, Wahyuni (2023) reported that digital platforms contribute positively to reading comprehension by increasing students' motivation and participation. In addition, Magfirah et al. (2022) demonstrated that the Readlang application significantly improves students' vocabulary mastery, which is a fundamental component of reading skills. Furthermore, Li and Gan (2022) found that reading motivation, self-regulated reading strategies, and vocabulary knowledge significantly predict students' English reading

comprehension, emphasizing that vocabulary breadth and depth play an important role in improving reading performance. These findings suggest that integrating technology into language learning has a positive impact on students' performance.

Despite these findings, there is still a gap in the existing literature. Most previous studies focus primarily on vocabulary improvement or general reading comprehension using various digital tools, while limited research specifically examines the effectiveness of the Readlang application in improving comprehensive reading skills, including comprehension, fluency, and vocabulary mastery simultaneously, particularly in higher education contexts. This gap highlights the need for further investigation into the role of Readlang as a specialized web-based reading tool.

In terms of research status, this study supports and extends previous research by confirming the effectiveness of web-based learning tools in language education. However, it goes beyond prior studies by providing a more comprehensive analysis of reading skills and focusing specifically on the Readlang application in a university setting. Therefore, this study does not contradict previous findings but strengthens and refines them by offering more specific empirical evidence.

The novelty of this research lies in its focus on integrating the Readlang application as a specialized digital tool to improve multiple aspects of reading skills simultaneously within a higher education context. Unlike previous studies that tend to examine isolated aspects of reading or use general digital platforms, this study provides a more holistic perspective on reading development.

Based on these considerations, the objective of this study is to analyze whether there is a statistically significant difference in students' reading skills before and after the use of the Readlang application. This study is expected to contribute both theoretically and practically to the development of technology-enhanced language learning.

METHOD

This study employed a quantitative approach using a pre-experimental design, specifically the one-group pretest–posttest model. The one-group pretest–posttest design has been widely implemented in educational experimental studies to measure students' learning outcomes before and after an intervention (Febriyanty et al., 2021). Quantitative research applies a deductive–inductive process, beginning with theoretical foundations and proceeding to empirical verification through data analysis (Hartono, 2019). The choice of a pre-experimental research design in this study was based on real-world conditions in the field that did not allow the researcher to create a control group or randomly assign students to classes. The research subjects were determined by the university, so the researcher could only use the existing group. Additionally, limited class time and university policies necessitated that the intervention be implemented directly within the same class. Consequently, the pre-experimental design was deemed most appropriate as it allowed the researcher to measure changes in student performance by comparing pre- and post-intervention results, even in the absence of a comparison group.

The research was conducted at the English Education Study Program of KH. A. Wahab Hasbullah University. The participants consisted of 32 second-semester students selected through purposive sampling, as this technique allows the researcher to choose samples based on specific criteria relevant to the research objectives (Sihotang, 2023).

The research procedure was carried out in four main stages. First, the pre-test stage was conducted to assess students' initial reading ability, including oral reading and reading comprehension. This stage was administered in one meeting before the treatment. Second, the treatment stage was implemented using the Readlang web-based application over four meetings. During this stage, students engaged in reading activities using digital texts. Each meeting focused on guided reading practice, where students utilized Readlang features such as instant translation and vocabulary storage to support comprehension, identify unfamiliar words, and improve reading fluency. Third, the post-test stage was conducted in one meeting after the treatment to evaluate students' reading performance using equivalent test formats. Finally, the data analysis stage was carried out by comparing the results of the pre-test and post-test to determine the effect of the intervention on students' reading skills.

The research instrument consisted of reading tests combining oral reading and reading comprehension components. These instruments were designed to measure students' fluency, pronunciation, intonation, and understanding of texts, which are essential aspects of reading skill assessment. Data analysis was conducted using descriptive and inferential statistics. A normality test using Shapiro–Wilk was first applied because the sample size was fewer than 50 (Fattah, 2019). Since the data were not normally

distributed, the Wilcoxon Signed-Rank Test was used as a non-parametric alternative to analyze differences between pre-test and post-test scores. This test is appropriate for paired data and does not require normal distribution assumptions. The decision-making criterion was based on the significance value ($p < 0.05$), indicating a statistically significant difference between the two sets of scores. Overall, this method integrates experimental procedures with digital learning media, where the Readlang application functions as a web-based tool to support students' reading development through interactive and technology-assisted learning.

RESULT AND DISCUSSION

This section presents the results of data analysis obtained from the pre-test and post-test conducted to examine the effect of the Readlang application on students' reading skills. The findings are described statistically to provide a clear understanding of the data obtained during the research process. Furthermore, the discussion interprets the findings by relating them to previous studies and relevant theories in order to explain the significance and implications of the research results.

Result

The results of this study present the effect of the Readlang application on students' reading skills based on pre-test and post-test scores obtained from 32 students.

Descriptive statistics indicate a difference in students' reading performance between the pre-test and post-test after the treatment. The mean score improved from 72.66 in the pre-test to 82.38 in the post-test. In addition, the standard deviation decreased from 8.79 to 4.81, indicating that the distribution of scores became more consistent in the post-test.

Table 1 Pre-test and Post-test Results

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
nilai pre-test	32	57	89	72.66	8.790	77.265
nilai post-test	32	75	93	82.38	4.811	23.145
Valid N (listwise)	32					

Table 2 Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
nilai pre-test	.127	32	.200 [*]	.965	32	.381
nilai post-test	.149	32	.067	.932	32	.044

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The pre-test and post-test were administered to measure students' reading performance before and after the implementation of the treatment. The pre-test was conducted prior to the use of the Readlang application to identify students' initial reading ability, while the post-test was conducted after the treatment to evaluate any changes in their performance. The results obtained from both tests were then analyzed statistically to determine the significance of the difference. Before conducting further statistical analysis, a normality test was performed to determine whether the data distribution met the assumption of normality, which is required for selecting an appropriate statistical test. The results of the Shapiro-Wilk normality test show that the pre-test data were normally distributed ($p = 0.381$), while the post-test data were not normally distributed ($p = 0.044$). Based on these results, the assumption of normality was not fully met, and a non-parametric statistical test was required.

Table 3 Wilcoxon Signed-Rank Test (Ranks)

Ranks		N	Mean Rank	Sum of Ranks
POST TEST - PRE TEST	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	32 ^b	16.50	528.00
	Ties	0 ^c		
	Total	32		

a. POST TEST < PRE TEST
b. POST TEST > PRE TEST
c. POST TEST = PRE TEST

Test Statistics ^a	
	POST TEST - PRE TEST
Z	-4.941 ^b
Asymp. Sig. (2-tailed)	.000

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

The Wilcoxon Signed-Rank Test was applied to examine the difference between pre-test and post-test scores. The results show that there were 32 positive ranks, 0 negative ranks, and 0 ties. The statistical test results show a Z value of -4.941 with a significance level of 0.000 ($p < 0.05$), indicating a statistically significant difference between pre-test and post-test scores. The Wilcoxon Signed-Rank Test was conducted to examine the difference between students' pre-test and post-test scores. The results show that all 32 participants were categorized as positive ranks, with no negative ranks or tied scores, indicating that every student obtained a higher score in the post-test compared to the pre-test.

Discussion

The findings of this study indicate that the use of the Readlang application has a significant effect on students' reading skills. This effect can be associated with the interactive digital features that support the reading process. The instant translation feature assists students in dealing with unfamiliar vocabulary, allowing them to maintain focus on overall text comprehension. In addition, the vocabulary storage feature provides repeated exposure to new words, which supports vocabulary retention and reading fluency. These findings are in line with Aisyah and Mabaro (2021), who found that web-based extensive reading activities significantly improved students' reading proficiency by providing flexible access to reading materials and encouraging independent learning.

This study addresses the identified research gap by providing empirical evidence of the effectiveness of the Readlang application in a higher education context. While previous studies tend to focus on vocabulary improvement or general web-based learning tools, this research demonstrates that Readlang supports multiple aspects of reading skills, including comprehension, fluency, and vocabulary mastery simultaneously.

From a theoretical perspective, the findings are consistent with the concept of Web-Based Language Learning (WBLL), which emphasizes that digital learning environments enhance student engagement and provide flexible access to learning materials. The results support the view that integrating technology into language learning can improve students' reading performance by creating more interactive and efficient learning experiences. This finding is also supported by Shadieff and Wang (2022), who reported that technology-supported language learning promotes learner engagement, motivation, and language skill development through meaningful digital learning activities.

In comparison with previous studies, the results of this research are in line with findings that web-based tools positively influence language learning outcomes. However, this study extends prior research by showing a more consistent impact, as all participants demonstrated improvement. This indicates that the Readlang application provides inclusive support for learners with different initial abilities.

The findings do not contradict previous research but rather strengthen and expand existing evidence regarding the effectiveness of digital learning media. The main contribution of this study lies in highlighting the comprehensive and consistent improvement in students' reading skills within a university context.

The benefits of this research are both theoretical and practical. Theoretically, it contributes to the development of knowledge in technology-enhanced language learning. Practically, it offers an effective alternative for lecturers and students by introducing Readlang as a digital tool that promotes independent learning, increases engagement, and helps students overcome reading difficulties more efficiently.

CONCLUSIONS

This study concludes that the use of the Readlang application has a statistically significant effect on students' reading skills, particularly in comprehension, vocabulary mastery, and reading fluency, thereby achieving the research objective. The innovation of this study lies in integrating a specialized web-based reading tool within a higher education context, demonstrating that digital applications can support multiple aspects of reading simultaneously in a more consistent and inclusive manner. The pedagogical implication of this finding suggests that lecturers can incorporate Readlang as an effective digital medium to support student engagement and promote independent learning in reading instruction. However, this study has limitations, particularly the use of a pre-experimental design without a control group and a relatively small sample size, which may affect the generalizability of the findings. Therefore, future research is recommended to employ more rigorous experimental designs and involve larger and more diverse participants to strengthen the validity of the results.

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