The effect of readability to the students' ability in reading comprehension at grade XI of private high school on Nommensen campus

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh penggunaan aplikasi *Readable* terhadap kemampuan membaca pemahaman siswa kelas XI di SMA Swasta Kampus Nommensen. Penelitian ini menggunakan pendekatan kuantitatif dengan desain kuasi-eksperimen yang melibatkan 50 siswa, terdiri dari kelas eksperimen dan kelas kontrol. Data dikumpulkan melalui *pre-test* dan *post-test*, kemudian dianalisis menggunakan uji *independent sample t-test*. Hasil penelitian menunjukkan bahwa penggunaan aplikasi *Readable* memberikan pengaruh yang signifikan terhadap peningkatan kemampuan membaca pemahaman siswa, dengan nilai signifikansi 0,000 (kurang dari 0,05). Selain itu, kelas eksperimen menunjukkan peningkatan hasil belajar yang lebih tinggi dibandingkan kelas kontrol. Dengan demikian, aplikasi *Readable* dapat digunakan sebagai media pembelajaran yang efektif dalam meningkatkan kemampuan membaca pemahaman siswa.
Kata Kunci: efek; mudah dibaca; pemahaman bacaan; media pembelajaran

ABSTRACT

This study aims to analyze the effect of using the Readable application on the reading comprehension ability of eleventh grade students at Nommensen Campus Private High School. This study used a quantitative approach with a quasi-experimental design involving 50 students, consisting of an experimental class and a control class. Data were collected through pre-tests and post-tests, then analyzed using an independent sample t-test. The results showed that the use of the Readable application had a significant effect on improving students' reading comprehension ability, with a significance value of 0.000 (less than 0.05). In addition, the experimental class showed a higher increase in learning outcomes than the control class. Thus, the Readable application can be used as an effective learning medium in improving students' reading comprehension ability.
Keywords: effect; readable; reading comprehension; learning media

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1. INTRODUCTION

Language, in general, refers to the communication system used by humans or other creatures to express thoughts, ideas, feelings, or information. Language is one of the characteristics that distinguishes humans from other animals because humans have the ability to use complex and abstract language. Basically, language consists of a series of symbols or words that carry meaning and govern how these symbols are used and arranged to form sentences and meaningful discourse. Language plays an important role in human life, as it is the primary tool for communication and for sharing knowledge, culture, and values. Language is more than noise that occurs in message transmission; it has effects at all stages of knowledge transfer (Welch & Welch, 2008: 342). Language can also serve as a tool for self-expression and cultural identity. Each language has its own characteristics, and there are thousands of languages spoken around the world. In addition to spoken language, there is also written language, which uses symbols to convey ideas and information. Languages can evolve and change over time and can be learned and passed on to the next generation. In the context of globalization, some languages are becoming more dominant than others in international communication.

Language learning is fundamentally built upon four interrelated macro skills: listening, speaking, reading, and writing. These skills form the essential framework through which learners acquire not only linguistic knowledge but also the ability to function effectively within communicative contexts. These skills are categorized into receptive (listening and reading) and productive (speaking and writing), a distinction that underscores the dual role of language as both input and output (Brown, 2007). However, language learning extends far beyond the mechanical mastery of skills; it is deeply embedded in social interaction, cultural understanding, cognitive development, and identity formation.

Reading skill refers to the ability to decode written language and comprehend its meaning effectively and efficiently. It involves several sub-skills, such as identifying main ideas, recognizing text structures, inferring meaning from context, and integrating prior knowledge with new information. In educational contexts, especially in second language learning, reading skill is considered one of the most essential components for academic success and language development. As stated by Nunan (2003: 68), reading is a fluent process in which readers combine information from a text with their background knowledge to construct meaning. Nunan emphasizes that successful reading in a second or foreign language context requires the development of both lower-level decoding skills (such as recognizing words and phrases) and higher-level comprehension skills (such as summarizing, evaluating, and responding to texts). In his view, reading skill development must also include strategies such as skimming for gist, scanning for specific information, and reading for detail. These strategies are crucial for learners aiming to become independent readers in academic and real-world contexts.

Reading comprehension is widely understood as the process through which readers construct meaning from written text. It involves decoding words, interpreting sentences, integrating prior knowledge, making inferences, and critically engaging with content. Reading comprehension is the process of constructing meaning by coordinating a number of complex processes, including word reading, word and world knowledge, and fluency (Klingner et al., 2007: 2). Reading comprehension is not automatic; being able to read fluently does not necessarily guarantee understanding. This is one of the most commonly misunderstood phenomena in reading education. Many students, especially those learning English as a second language (ESL), can pronounce words correctly but fail to grasp the meaning of the passage due to gaps in vocabulary, background knowledge, or text structure awareness.

A significant problem in reading comprehension is limited vocabulary knowledge, which hinders a reader's ability to derive meaning from the text. Vocabulary knowledge is strongly related to reading comprehension; without a threshold level of vocabulary, comprehension cannot proceed successfully (Grabe & Stoller, 2002: 75). This is particularly challenging for ESL learners who may know how to decode words but lack the semantic knowledge required for deep comprehension. Another major issue is difficulty in identifying supporting sentences and summarizing texts. This study addresses a contemporary issue in education, focusing on the integration of artificial intelligence in teaching, which is still a relatively new area of research. While the research appears original, it is crucial to explicitly state its unique contribution compared to existing literature.

Based on the researcher’s experience during the teaching internship and interviews with several students at SMA Swasta Kampus Nommensen, many students were unable to identify the main idea, text structure, supporting sentences, and draw conclusions from a text. When the researcher gave five reading-related questions to two students, asking them to identify the main idea, both students were only able to answer one question correctly. This situation prompted the researcher to investigate the underlying causes.

The students stated, “Learning English was difficult because we did not understand the meaning. English was also hard to understand because what is written is different from how it is spoken. Learning from books alone was boring, there was no translation or audio. However, using Readable was helpful, especially because it provided audio for unfamiliar vocabulary.” These findings indicate that students’ difficulties were largely due to limited vocabulary, which hindered their ability to understand texts, identify key elements, and grasp the social function, text structure, and language features of reading materials.

The reviewed studies consistently demonstrate that the integration of digital and AI-based media significantly enhances students’ reading comprehension across various contexts. Research by Aisyah (2024), Jannah et al. (2024), and Yanuar et al. (2023) provides strong evidence that the Readable application positively impacts high school students’ comprehension of narrative texts, as shown by significant post-test improvements and positive student perceptions.

Similarly, Amalia (2018) found that interactive digital platforms, such as Line Webtoon, can improve comprehension skills. Beyond Indonesia, Capodieci et al. (2020) highlighted the effectiveness of the Cloze application for children with reading difficulties in Italy, showing notable improvements after digital-based training. Collectively, these findings indicate that technology-enhanced reading tools, particularly those

incorporating AI features such as Readable, offer measurable benefits in comprehension, motivation, and engagement.

Therefore, the researcher proposes the use of the Readable application as a solution to improve students' reading comprehension. Educational applications have become integral to language acquisition, particularly in English as a Foreign Language (EFL) contexts. Readable: Learn English with Stories offers an innovative approach by combining graded reading materials, text-to-speech (TTS), and interactive vocabulary support to enhance comprehension. As reading comprehension is a core component of language proficiency, integrating such digital tools into teaching practices is increasingly relevant, especially in contexts with limited access to authentic English texts.

Research in second language acquisition emphasizes the importance of extensive reading, vocabulary exposure, and multimodal input in supporting comprehension. Combining audio with reading significantly improves learners' ability to process and understand texts (Chang & Millett, 2015). The Readable application supports this by providing level-based stories with synchronized narration. Additionally, its tap-to-translate feature promotes incidental vocabulary learning, enabling learners to acquire new words in context (Nation, 2001). This study explores the impact of AI-based teaching media specifically for reading comprehension in Indonesian high schools, a context that remains under-researched.

2. RESEARCH METHOD

A. Design of the Research

Research design is one of the important stages in research. This study employed a quantitative research method with a quasi-experimental design to determine the impact of the Readable application on students' reading comprehension among eleventh-grade students at SMA Swasta Kampus Nommensen. As stated by Creswell (2018), quantitative research involves testing objective theories by examining relationships among variables. A quasi-experimental design, according to Creswell (2018), involves assigning participants to groups without random assignment. This approach is suitable for school settings where schedules cannot be disrupted or classes reorganized.

In this study, a pre-test (X1) was conducted prior to the introduction of the Readable application to measure students' reading comprehension before the intervention. Subsequently, the Readable application was used as an instructional medium to improve students' reading comprehension. A post-test (X2) was administered after the treatment to determine the extent of students' progress.

Table 1. Research Design

Group	Pre-test	Treatment	Post-test
Control	X1	Y2	X2
Experimental	X1	Y1	X2

Notes:
X1 = Pre-test
X2 = Post-test
Y1 = Treatment (Readable)
Y2 = Treatment (Textbook)

B. Population and Sample of the Research

1) Population

According to Fraenkel et al. (2012: 20), the population refers to the larger group to which the research findings are intended to be generalized. The population in this study consisted of all eleventh-grade students at SMA Swasta Kampus Nommensen, totaling 78 students across three classes. Each class consisted of approximately 25–28 students.

Table 2. Population

No.	Class	Total Students
1	XI-1	25
2	XI-2	25
3	XI-3	28
	Total	78

All students, both male and female, followed the same English curriculum and instructional materials.

2) Sample

After determining the population, the researcher selected the sample. According to Fraenkel et al. (2019), a sample is a group from which data are collected. This study used purposive sampling, as defined by Sugiyono (2019), which considers specific characteristics in selecting participants.

The researcher selected two classes with relatively similar abilities and balanced student numbers. Class XI-1 was chosen as the experimental group, while class XI-2 was assigned as the control group. These classes were considered representative and suitable for the study.

Table 3. Research Sample

Group	Class	Total
Experimental	XI-1	25
Control	XI-2	25
Total		50

C. Instrument of the Research

A research instrument is a tool used to collect data. According to Creswell (2018: 6), an instrument is used for measuring, observing, and documenting quantitative data. In this study, the researcher used a multiple-choice test as the instrument. The test consisted of two parts: a pre-test and a post-test.

The pre-test was administered before the treatment, while the post-test was conducted after the treatment. By comparing the results of both tests, the researcher could determine whether the treatment improved students' reading comprehension. The test items were based on Nuttall's theory (cited in Safitri, 2023: 19), which includes aspects such as identifying the main idea, making inferences, and finding specific information.

D. Technique of Data Collection

The researcher collected data from eleventh-grade students using pre-test, treatment, and post-test procedures. The steps were as follows:

1) Pre-Test

Before the treatment, both experimental and control groups were given a pre-test to assess their initial reading comprehension ability.

2) Treatment

The experimental group was taught using the Readable application as a learning medium, while the control group was taught using conventional instructional media. Both groups received the same learning materials.

3) Post-Test

After the treatment, a post-test was administered to measure students' improvement in reading comprehension.

The pre-test and post-test results were compared to determine the effectiveness of the Readable application in improving students' reading comprehension.

E. Technique of Data Analysis

The data in this study were analyzed using statistical techniques. The researcher compared the pre-test and post-test scores of students in both the experimental and control groups.

To analyze the data, the researcher used the t-test to determine whether the Readable application had a significant effect on students' reading comprehension. Before conducting the t-test, the data were tested for normality and homogeneity. All data analyses were performed using SPSS Statistics version 17.0 for Windows.

3. RESULTS AND DISCUSSION

A. Results

After conducting the data analysis, several findings were obtained that address the research problems:

1. The analysis indicated that the use of the Readable application significantly affects students' reading comprehension among eleventh-grade students at SMA Swasta Kampus Nommensen. The value of Sig. (2-tailed) in the Paired Samples Test was 0.000, which is less than 0.05, thus meeting the criterion for accepting Ha. This result indicates a significant effect of the intervention.
2. In the experimental class, the pre-test scores ranged from 10 to 80, with a mean of 57.2 and a standard deviation of 19.261. The post-test scores ranged from 30 to 100, with a mean of 79.2 and a standard deviation of 21.197. This indicates a notable improvement in reading comprehension after the intervention.
3. In the control class, the pre-test scores ranged from 10 to 80, with a mean of 56 and a standard deviation of 18.421. The post-test scores ranged from 40 to 100, with a mean of 74 and a standard deviation of 16.583. The improvement in the control class was less pronounced compared to the experimental class.
4. The hypothesis testing results support the conclusion that the use of the Readable application has a significant impact on students' reading comprehension. Since the Sig. (2-tailed) value was 0.000 (< 0.05), Ha is accepted, indicating that the intervention was effective in improving students' reading comprehension.

In summary, the findings demonstrate that the implementation of the Readable application positively influences students' reading comprehension, with the experimental group showing greater improvement than the control group.

B. Discussion

The findings of this study are consistent with previous research indicating that the Readable application is effective as a learning medium. However, the results differ in terms of the average scores obtained by students.

This study aimed to evaluate the impact of the Readable application on reading comprehension among eleventh-grade students at SMA Swasta Kampus Nommensen. The analysis revealed a significant effect of the intervention, as indicated by the Sig. (2-tailed) value of 0.000, which is less than 0.05. This result supports the acceptance of the alternative hypothesis (Ha), confirming that the treatment positively influenced students' reading comprehension.

In the experimental class, students showed a substantial improvement from pre-test to post-test scores, indicating the effectiveness of the Readable application in enhancing reading skills. In contrast, although the control class also showed improvement, the increase was less significant compared to the experimental class. This highlights the advantage of using interactive digital media in learning.

The findings also indicate that students who learned using the Readable application achieved better results than those who used conventional media. This is because the application provides an interactive learning experience through translation features, story-based content, and audio support, which help students better understand reading materials. In addition, the use of Readable encourages students to learn independently and increases their motivation to engage in learning activities.

However, several limitations were identified in the use of the Readable application. To access full features, students are required to use the paid version, which may limit accessibility. In addition, restrictions on mobile phone usage in the classroom may hinder the implementation of the application. Even when mobile phones are permitted, limited internet access and data quotas may become additional challenges. Therefore, although the Readable application offers significant benefits, its implementation should consider these constraints and be supported by appropriate learning policies.

4. CONCLUSION

Based on the findings of the research, it can be concluded that the use of the Readable application is effective in improving students' reading comprehension. The data analysis showed that Readable had a significant influence on students' reading ability, particularly in identifying the main idea, finding specific information, and mastering vocabulary. After the implementation of Readable in the experimental class, students were able to understand the main idea, vocabulary, and specific information more easily compared to when they used conventional media.

Thus, the Readable application can be considered an effective alternative learning medium in teaching English, especially in developing reading comprehension skills. This application was able to reduce students' difficulties in understanding reading texts while simultaneously increasing their learning motivation.

However, several limitations were identified. Teachers still need to provide proper supervision to ensure that students use the application appropriately. In addition, some features are only accessible through the paid version, which may limit its use. Therefore, the implementation of Readable as a learning medium should be conducted in a structured manner and complemented with other instructional media.

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