

## Improving Students' Reading Comprehension through Powerpoint-Based Instruction: An Experimental Study at SMP Negeri 21 Palu

Aditya Moh. Zikri<sup>1</sup>, Darmawan<sup>1</sup>, Wahyudin<sup>1</sup>

<sup>1</sup>Universitas Tadulako Palu, Indonesia

\*Correspondence: [darmawan1981@gmail.com](mailto:darmawan1981@gmail.com)

### ABSTRACT

*Reading comprehension is a fundamental skill in language learning that enables students to understand, interpret, and engage with written texts effectively. However, many students, especially at the junior high school level, face difficulties in comprehending reading materials due to limited vocabulary, lack of motivation, and ineffective teaching methods. This research aimed to investigate whether the use of PowerPoint as a teaching aid could improve the reading comprehension skills of seventh-grade students at SMP Negeri 21 Palu. A pre-experimental design was employed in this study, involving 17 students selected through convenience sampling. The data were collected using multiple-choice and true-false tests administered before (pre-test) and after (post-test) the treatment. The statistical analysis revealed that the t-counted value exceeded the t-table value, indicating that the research hypothesis was accepted. These findings suggest that the use of PowerPoint has a positive effect on enhancing the students' reading comprehension skills.*

### ARTICLE HISTORY

Published June 22<sup>th</sup> 2025



### KEYWORDS

Improve, Reading Comprehension, PowerPoint

### ARTICLE LICENCE

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### 1. Introduction

Reading comprehension is a vital skill in language learning that goes beyond simply recognizing or reading words. It involves understanding the meaning of a text, identifying main ideas, interpreting supporting details, making inferences, and connecting new information with prior knowledge. As stated by Rachmijati and Nurkamto (2021), effective reading comprehension requires readers to actively engage with the text by identifying its central message, drawing logical conclusions from implicit information, and relating the content to their existing knowledge. However, many junior high school students, particularly in Indonesian contexts, continue to struggle with this skill due to limited vocabulary, lack of engagement, and traditional teaching methods that may not support deeper comprehension (Rahman, 2018; Yaumi et al., 2023; Weda et al., 2022; Suheri et al., 2025). This highlights the importance of exploring innovative teaching tools, such as PowerPoint, to enhance students' interest and ability in understanding reading materials. Integrating technology into reading instruction, therefore, is not only relevant but also necessary to improve students' reading outcomes in today's classroom environments.

Reading is a fundamental skill in learning a language, especially English, as it provides access to a wide range of information found in various sources such as newspapers, textbooks, and online articles. According to Ningsih and Yuliasri (2022), reading plays a crucial role in helping learners comprehend new information and develop language proficiency, particularly in academic settings. The process of reading is not just about recognizing words, but about constructing meaning, making connections, and interpreting ideas. This aligns with the interactive theory of reading, which views reading as a dynamic process involving both top-down (background knowledge) and bottom-up (text decoding) strategies (Rumelhart, 1980; Aswad et al., 2019; Junaid et al., 2024). In line with this, the Kurikulum Merdeka emphasizes students' ability to understand the meaning of texts in context, encouraging critical thinking and comprehension.

In addressing this goal, integrating digital tools in the classroom can enhance student engagement and support reading development. Microsoft PowerPoint, a presentation software widely used in education, offers features that can support learning through the combination of text, images, audio, and video. This multimedia approach is supported by Mayer's Cognitive Theory of Multimedia Learning, which argues that people learn more effectively from words and pictures than from words alone (Mayer, 2005). PowerPoint enables teachers to design interactive lessons that are visually engaging and structured clearly, which helps students follow and retain the material better. As noted by Sari and Pratama (2021),

the use of PowerPoint in teaching helps deliver content in a more organized and appealing way, thus improving student understanding and participation.

PowerPoint is also flexible in supporting the four main English language skills—listening, speaking, reading, and writing. In the context of reading instruction, PowerPoint can be used to present texts along with images, key vocabulary, audio narration, and guiding questions, which collectively support comprehension. This multimedia environment aligns with students' digital learning preferences and encourages active engagement with the material.

Observations at SMP Negeri 21 Palu indicate that many students have not yet achieved the reading comprehension goals outlined in the curriculum. Most students struggle with reading English texts independently and often rely heavily on dictionaries or online translators. This reliance suggests low confidence and motivation, which can hinder their progress. Students tend to find reading English texts difficult and uninteresting when taught using conventional methods. In this case, PowerPoint presents a potential solution by allowing teachers to create visually rich, interactive reading materials that can capture students' attention and support understanding. As supported by Rahmawati and Yuliana (2023), using PowerPoint in English language teaching can improve student focus and comprehension through the integration of audio-visual elements.

Given these observations and theoretical perspectives, this study aims to investigate whether Microsoft PowerPoint can enhance the reading comprehension skills of seventh-grade students. Specifically, it explores how PowerPoint can be used as a teaching medium to make reading materials more accessible and engaging, while also increasing students' interest in reading English texts.

## 2. Methodology

This study uses a pre-experimental research design with one group, a pre-test, and a post-test. In this design, only one group is observed. Microsoft PowerPoint is used as the treatment or independent variable. A pre-test is given before the treatment, and a post-test is given after the treatment. The results from both tests are compared to see the effect of the treatment on students' reading comprehension. This type of design is explained by Creswell (2009) as a way to measure the impact of an intervention using one group without a control group.

**Table 1. Pre-experimental Design**

Group A	$O_1 X O_2$
Where:	$O_1 = \text{Pre-test}$
	$X = \text{Treatment}$
	$O_2 = \text{Post-test}$

In this study, the sample consists of seventh-grade students at SMP Negeri 21 Palu. There are two classes of seventh graders, and both have problems with reading comprehension.

**Table 2. Number of Population**

No	Class	Number of the students
1	VII A	17
2	VII B	17
<b>Total</b>		<b>34</b>

Convenience sampling is used because these classes are the only available groups for this research. To collect data, two tests are used: a pre-test and a post-test. The pre-test is given before the treatment to measure the students' initial reading comprehension. The post-test is given after the treatment to find out if there is improvement. Comparing the results of the pre-test and post-test helps to understand the effect of using PowerPoint as a teaching media. The pre-test is done in the first meeting. It has 20 questions, including true-false and multiple choice. This test aims to find out the students' level of reading comprehension before the treatment. The scores from this test will be compared with the post-test scores to measure progress. The scoring system is as follow:

**Table 3. Types of Test and Scoring Rubric**

No	Types of tests	Number of items	Score of each item	Max score
1	True-False	10	1	10
2	Multiple choice	10	1	10
<b>Total</b>				<b>20</b>

In order to know whether the student's pre-test and post-test have significant difference, the researcher analyzes the data by using statistical analysis proposed by Arikunto (2006:349) as follows:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}$$

Where:

t = t-test score

Md = Mean from pre-test and post-test

$\sum x^2 d$  = Sum of square deviation

N = Number of students

### 3. Result and Discussion

#### 3.1 Result

This section presents the results of the research based on data collected from pre-test and post-test. The data include students' scores before and after the treatment, as well as statistical calculations such as mean scores, deviation, and squared deviation. These results aim to show whether there is any improvement in students' reading comprehension after using Microsoft PowerPoint as a teaching medium.

##### a. The Result of Pre-Test

The pre-test was administered to assess the students' initial reading comprehension abilities before the treatment was given. Based on the data in Table 4, the scores varied considerably among the 17 participants, with individual scores ranging from 30 to 90 out of a maximum of 100. The total score obtained by all students was 985 out of a possible 1,700, resulting in a mean score of 57.94. This indicates that, on average, students' reading comprehension was still below the expected standard, highlighting the need for instructional intervention to improve their performance.

**Table 4. The Students' Score in Pre-Test**

No	Initials	Total Score	Maximum Score	Students' Score
1	MZA	11	20	55
2	SS	12	20	60
3	E	10	20	50
4	VS	11	20	55
5	MF	6	20	30
6	S	13	20	65
7	N	15	20	75
8	CSM	14	20	70
9	R	13	20	65

10	A	13	20	65
11	MA	18	20	90
12	CF	12	20	60
13	RR	8	20	40
14	ARA	7	20	35
15	AP	13	20	65
16	SAP	12	20	60
17	AAS	9	20	45
	TOTAL	197	340	985
	MEAN	11.59		57.94

#### **b. The Result of Post-Test**

The post-test was conducted after the treatment to measure any improvement in students' reading comprehension. As shown in Table 5, the students' scores increased compared to the pre-test, with individual results ranging from 45 to 95. The total score achieved by the 17 students was 1,120 out of a maximum of 1,700, resulting in a mean score of 65.88. This improvement in the average score suggests a positive impact of the treatment, indicating that students showed better understanding of the reading materials after the intervention.

**Table 5. The Students' Score in Post-Test**

No	Initials	Total Score	Maximum Score	Students' Score
1	MZA	12	20	60
2	SS	13	20	65
3	E	11	20	55
4	VS	12	20	60
5	MF	10	20	50
6	S	14	20	70
7	N	16	20	80
8	CSM	16	20	80
9	R	14	20	70
10	A	14	20	70
11	MA	19	20	95
12	CF	13	20	65
13	RR	10	20	50
14	ARA	9	20	45
15	AP	15	20	75
16	SAP	14	20	70
17	AAS	12	20	60
	TOTAL	224	340	1120
	MEAN	13.18		65.88

The post-test results show that the highest score is 95 and the lowest score is 45, and the mean score is 65.88. After calculating the students' average scores in both the pre-test and post-test, the deviation and squared deviation of the scores are shown in the table below.

The comparison between pre-test and post-test scores, as presented in the table above, reveals a consistent improvement in students' reading comprehension performance following the treatment. Each student showed a positive gain, with deviations ranging from 5 to 20 points. The total deviation across all students was 140, with an average deviation of 8.24. Furthermore, the sum of squared deviations reached 1,500, with a mean squared deviation of 88.24. These results indicate not only an overall improvement but also suggest that the treatment had a relatively uniform effect on most students, supporting the effectiveness of the intervention in enhancing their reading skills.

**Table 6. The Deviation and Square Deviation of Pre-test and Post-test**

No	Initials	Pre-test	Post-test	Deviation (D1) (02-01)	Squared Deviation (D2)
1	MZA	55	60	5	25
2	SS	60	65	5	25
3	E	50	55	5	25
4	VS	55	60	5	25
5	MF	30	50	20	400
6	S	65	70	5	25
7	N	75	80	5	25
8	CSM	70	80	10	100
9	R	65	70	5	25
10	A	65	70	5	25
11	MA	90	95	5	25
12	CF	60	65	5	25
13	RR	40	50	10	100
14	ARA	30	45	15	225
15	AP	65	75	10	100
16	SAP	60	70	10	100
17	AAS	45	60	15	225
	TOTAL	980	1120	140	1500
	MEAN	57.94	65.88	8.24	88.24

Based on the table 4.3, it shows that the highest deviation (D1) score is 20 while the lowest score is 5. Then the highest square deviation (D2) score is 400 while the lowest score is 25. The researchers then analyze the t-value in order to find out the difference in the means score of pre-test and post-test by using formula as follows:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$
$$t = \frac{8,24}{\sqrt{\frac{347}{17(17-1)}}}$$
$$t = \frac{8,24}{\sqrt{\frac{347}{17(16)}}}$$
$$t = \frac{8,24}{\sqrt{\frac{347}{272}}}$$
$$t = 7.29$$

The analysis of data above shows that the value of t- counted is 7.29

The hypothesis of this study states that using PowerPoint can improve the reading comprehension of seventh-grade students at SMP Negeri 21 Palu. To find out the significant difference in the test, the value of the t-counted is compared with the value of the t-table. With a degree of freedom (df) =  $N - 1 = 17 - 1 = 16$  and a 0.05 level of significance, the result shows that the t-counted value (7.29) is higher than the t-table value (1.746). This means the hypothesis is accepted. In other words, using PowerPoint improves the reading comprehension of seventh-grade students at SMP Negeri 21 Palu.

### 3.2 Discussion

This study tries to find out whether Microsoft PowerPoint can help improve the reading comprehension of seventh-grade students at SMP Negeri 21 Palu. The results show that there is a clear difference between the students' pre-test and post-test scores. The average score before the treatment (pre-test) is lower than the average score after the treatment (post-test). The highest post-test score is 95, the lowest is 45, and the average score is 65.88. These numbers suggest that most students make progress after learning with PowerPoint.

To confirm this improvement, a t-test is used. The result shows that the t-counted value (7.29) is higher than the t-table value (1.746). This means there is a significant difference between the scores before and after using PowerPoint. The result proves that PowerPoint helps students understand reading materials better.

There are some possible reasons why PowerPoint improves reading comprehension. First, PowerPoint makes the lesson more visual. Instead of just reading long texts, students see pictures, colors, and clear points. These visual elements help them understand the topic faster and easier. According to Rahmawati and Yuliana (2023), visual aids like PowerPoint help students pay more attention in class and remember the material longer.

Second, PowerPoint helps the teacher explain reading texts step by step. The slides can show the main idea, difficult words, and important details one by one. This makes the text easier to follow. When a reading passage is broken down into parts, students do not feel overwhelmed. Instead, they understand the meaning slowly but surely. This is inline with what Sari and Pratama (2021) found in their research, where students showed better understanding when teachers used organized slides in the classroom.

Third, PowerPoint gives space for interaction. The teacher can ask questions on the slides, show short quizzes, or discuss vocabulary through examples. This kind of teaching makes students more active, not just silent readers. It also gives them time to process what they read. This approach fits with what Putri and Marlina (2022) suggest, that active learning helps students with low reading motivation.

Before the treatment, many students in this study rely on dictionaries or online translators when reading English texts. This habit shows they are not confident in reading. It also shows that they are not used to guessing meaning from context. This problem is very common among junior high school students, especially in areas where English is not used

every day. PowerPoint, with its simple layout and visuals, supports students by giving them clues and context directly on the screen. As a result, they do not need to check a dictionary all the time.

Also, students usually enjoy learning more when the media is interesting. PowerPoint adds variety to the classroom. It is different from reading only from a textbook. The slides can include games, images, bold texts, and even short videos. When learning becomes fun, students pay more attention. This interest leads to better focus, and better focus leads to better understanding. Rachmijati and Nurkamto (2021) explain that students' interest in reading can grow when teachers use modern media and interactive tools.

This study only uses one group of students, which means there is no control group to compare with. This is a limitation of the research. Future studies should include more groups or schools to see if the result is the same in other settings. Also, the sample size is small (only 17 students). Even though the result is positive, more data is needed for stronger conclusions.

In short, this study shows that PowerPoint is a useful media to help improve reading comprehension among junior high school students. It helps students understand reading texts better, supports vocabulary learning, and makes lessons more interesting. Teachers in similar schools can try using PowerPoint in their reading classes to help students who face the same difficulties.

#### **4. Conclusion**

This study shows that using Microsoft PowerPoint in teaching helps improve the reading comprehension of seventh-grade students at SMP Negeri 21 Palu. The results from the pre-test and post-test show a clear increase in students' scores after the use of PowerPoint as a media of teaching. The average score becomes higher, and the t-test result shows a significant difference. This means that PowerPoint gives a real effect in helping students understand English texts better.

#### **References**

- Arikunto, S. (2006). *Prosedure Penelitian; Suatu Pendekatan Praktik* Jakarta; PT Asdi Mahasatya.
- Arsyad, A. (2011). *Media pembelajaran (Edisi Revisi)*. Jakarta: PT RajaGrafindo Persada.
- Aswad, M., Rahman, F., Said, I. M., Hamuddin, B., & Nurchalis, N. F. (2019). A software to increase English learning outcomes: An acceleration model of English as the second language. *The Asian EFL Journal*, 26(6.2), 157.
- Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches*. Third edition. Los Angeles: SAGE
- Creswell, J.W. (2015). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Fifth edition. New Jersey: Pearson Education
- Gay, L. R. & Mills, G. E. (2016). *Educational research: competencies for analysis and applications*. Boston: Pearson.
- Heinich, R., Molenda, M., Russell, J. D., & Smaldino, S. E. (2005). *Instructional media and technologies for learning (8th ed.)*. Upper Saddle River, NJ: Pearson Education, Inc.
- Junaid, S., Nahdhiyah, N., Dahlan, D., Andini, C., & Dzulhijjah, A. M. (2024). The Portrayal of African Woman's Struggle Reflected in the Novel "How Beautiful We Were" By Imbolo Mbue (2021). *ELS Journal on Interdisciplinary Studies in Humanities*, 7(2), 275-284.
- Mayer, R. E. (2001). *Multimedia learning*. Cambridge: Cambridge University Press.
- Ningsih, D. A., & Yuliasri, I. (2022). Implementing the independent curriculum in reading instruction: Teachers' voices. *Journal of English Language Teaching and Literature (JELTL)*, 7(2), 45–54.
- Ningsih, D., & Yuliasri, I. (2022). The role of reading in language learning. *Journal of English Education and Linguistics*, 8(1), 23–31. <https://doi.org/10.30662/jeel.v8i1.1824>
- Pala, O. Z. G. U. R. "Teaching listening and reading comprehension in Turkish using webbased materials." Retrieved May

20 (2005): 2008.

- Putri, A. D., & Marlina, L. (2022). Students' difficulties in reading comprehension at junior high school level. *English Language Teaching and Research*, 2(1), 12–19.
- Rachmijati, C., & Nurkamto, J. (2021). Improving students' reading comprehension through questioning technique. *Journal of Language and Linguistic Studies*, 17(1), 640–654.
- Rahman, F. (2018). The constraints of foreign learners in reading English literary works: A case study at Hasanuddin University. *Journal of Arts and Humanities*, 7(2), 01-12.
- Rahmawati, F., & Yuliana, R. (2023). Enhancing learning effectiveness through the use of PowerPoint presentations in classrooms. *Journal of Educational Technology and Instruction*, 4(2), 88–96.
- Rahmawati, L., & Yuliana, R. (2023). The effect of PowerPoint-based media on students' English learning outcomes. *Journal of English Language Teaching and Education*, 11(2), 98–105. <https://doi.org/10.24036/jelte.v11i2.421>
- Rumelhart, D. E. (1980). Schemata: The building blocks of cognition. In R. Spiro, B. Bruce, & W. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 33–58). Lawrence Erlbaum.
- Sari, D. K., & Pratama, Y. (2021). The use of Microsoft PowerPoint in improving students' reading comprehension. *Journal of Language and Education Research*, 4(2), 44–51. <https://doi.org/10.33474/langit.v4i2.10882>
- Sari, M. A., & Pratama, Y. (2021). The use of PowerPoint as a teaching media to improve students' learning outcomes. *Journal of Education Technology*, 5(3), 391–397.
- Snow, Catherine E. (2002). *Deciding What to Tell: Selecting and Elaborating Narrative Topics in Family Interaction and Children's Elicited Personal Experience Stories*. Harvard University.
- Suheri, H., Sosrohadi, S., Sulastri, T., Adinda, R., & Andini, C. (2025). Semiotic analysis of signs and symbols in digital instant noodle advertisements: A Marcel Danesi approach. *International Journal of Research and Innovation in Applied Science*, 10(4), 545-554.
- Weda, S., Atmowardoyo, H., Rahman, F., Said, M. M., & Herman, H. (2022). Lecturers' Perception of Online Learning and its Associated Factors in the Midst of Covid-19 Pandemic. *International Journal of Social Sciences*, 5(1), 112-131.
- Wixson, K. K., C. W. Peters, E. M. Weber, and E. D. Roeber. (1987). New directions in statewide reading assessment. *Reading Teacher* 40:749-55.
- Yaumi, M. T. A. H., Rahman, F., & Sahib, H. (2023). Exploring WhatsApp as Teaching and Learning Activities during Covid-19/New Normal era: A Semiotic Technology Analysis. *International Journal of Current Science Research and Review*, 6(12), 7627-7634.