AL IBTIDA: JURNAL PENDIDIKAN GURU MI (2022) Vol 9 (2) : 265-279
DOI: http://dx.doi.org/ 10.24235/al.ibtida.snj.v9i2.9129

Al Ibtida: Jurnal Pendidikan Guru MI
ISSN: 2442-5133, e-ISSN: 2527-7227
Journal homepage: http://syekhnurjati.ac.id/jurnal/index.php/ibtida
Journal email: alibtida@syekhnurjati.ac.id

The Effectiveness of Pop-Up-based Animation Book to Improve Reading Comprehension Skills of Elementary School Students

Liya Atika Anggrasari*
*Primary School Teacher Education Department, Faculty of Teacher Training and Education, University of PGRI Madiun, Indonesia
E-mail: liya@unipma.ac.id

Dian Permatasari Kusuma Dayu**
**Primary School Teacher Education Department, Faculty of Teacher Training and Education, University of PGRI Madiun, Indonesia
E-mail: dayuprasanda12@gmail.com

Received: March 13th, 2022. Accepted: October 10th, 2022. Published: October 30th, 2022.

Abstract

This study aims to determine the effectiveness of the use of pop-up-based animated books on the reading comprehension ability of elementary school students in the 3T region, namely Sawojajar, Magetan, Indonesia. This study employed a quantitative research approach. The method used in this research was the experimental method, using true experimental design as the research design. The type of research design employed in this study was post-test only control design. Grade 5 elementary school students in the 3T region, Sawojajar, Magetan participated in this study. The data were collected using observation, interviews, and reading comprehension tests. The obtained data were analyzed using a t-test. The effectiveness value of using the pop-up book is 6.13%. The t-test shows that the T_{count} is greater than the T_{table} (2.6667 > 2.00). Based on the results of data analysis, it can be concluded that learning using Pop Up-based animated book media is more effective in improving reading comprehension skills than learning using conventional media.

Keywords**:** *pop-up, animation book, reading comprehension skills*.

Abstrak

Penelitian ini bertujuan untuk mengetahui keefektifan penggunaan buku animasi berbasis pop-up dalam meningkatkan kemampuan pemahaman membaca siswa sekolah dasar (SD) di daerah 3T yaitu Sawojajar, Magetan, Indonesia. Jenis penelitian yang digunakan dalam penelitian ini adalah penelitian kuantitatif dengan metode eksperimen. Desain penelitian menggunakan true experimental design dengan jenis penelitian yang digunakan adalah post-test only control design. Sampel dalam penelitian ini adalah siswa kelas 5 SD di kawasan 3T, Sawojajar, Magetan. Teknik pengumpulan data menggunakan observasi, wawancara, dan tes pemahaman bacaan. Data yang diperoleh dianalisis menggunakan uji t. Efektivitas penggunaan pop-up book adalah sebesar 6,13%. Hasil uji t menunjukkan bahwa T-hitung lebih besar dari T-tabel (2,6667 > 2,00). Berdasarkan hasil analisis data,

dapat disimpulkan bahwa penggunaan media buku animasi berbasis pop-up lebih efektif dalam meningkatkan keterampilan membaca pemahaman dibandingkan dengan pembelajaran yang menggunakan media konvensional.

Kata kunci: *pop-up, buku animasi, kemampuan pemahaman membaca.*

INTRODUCTION

Lockdown and social distancing measures due to the Covid-19 pandemic have led to most countries' closures of schools, training institutes, and higher education facilities. The education systems and educators have adopted "Education in Emergency" through various online platforms and are compelled to adopt a system they are unprepared for (Pokhrel & Chhetri, 2021). Teachers and students inevitably have to adapt to new learning patterns, all of which require the use of technology in the learning process. However, there is an information technology gap among regions in Indonesia because this country is an archipelago with thousands of small islands (Priambodo, 2021). In other words, Indonesia still has many regions, especially the 3T regions, where information technology cannot be accessed as easily as in big islands, such as Java.

The utilization of Information and Communication Technology (ICT) in 3T (Frontier, Outermost, and Least Developed) regions has a meaningful strategy for reducing the gap in quality and educational opportunities (Anwas, 2013). The frontier region is an area directly adjacent to other developed regions. On the contrary, the remote regions lack access to other relatively developed regions. The underdeveloped region is a region that is relatively lacking in development compared to other regions on a national scale, based on conditions and inter- and intra-spatial functions, including the natural, human, and infrastructure aspects that can support it. In regions with these characteristics, the quality of education is still low compared to urban areas and rural regions in general.

Education in the 3T regions is inevitably affected by the Covid-19 pandemic, given the limited access to Information and Communication Technology (ICT) compared to areas outside 3T. The digital divide—the difference in digital use (ICT)—is caused by economic and social inequality. Most studies on the digital divide focused on access to computers, networks, the internet, and other technologies. Even before the pandemic, education in the 3T region faces many challenges, and the situation becomes more precarious during the Covid-19 pandemic (Nahumury & Antony, 2022).

The 21st century is an information technology era where education views knowledge as the foundation of further education. One of the characteristics of the education system in this era is the implementation of the classroom teacher system, which requires teachers to be skilled in teaching and mastering various subjects. One of the main subjects that form the fundamental mastery of other subjects is the Indonesian language subject at primary school, which focuses on literacy skills (reading and writing) (Hartati, 2017). Formal education that starts from elementary school serves as a center of students' development in literacy and literacy culture (Zulela, 2012).

Learning to read in elementary schools is distinguished by grade level and grade level types of skills (Fathonah, 2016). Grade I and II students' types of reading skills are basic reading skills, while grade III, IV, V, and VI students' reading skills are focused on reading comprehension. Learning to develop is meant to establish basic reading activities to

understand writing. Two aspects of reading skills are mechanical skills and comprehensive process learning. In the process of learning to read, teachers must pay attention to how they can realize effective learning (Budiarti & Haryanto, 2016).

Reading comprehension is reading cognitively (reading to understand). A person is said to understand the content if he has been able to express the content reading using his own words (Dalman, 2013). This step is usually done by students who have passed pre-reading, especially high school graders base. The understanding of reading begins with the knowledge that has been obtained before someone reads. Furthermore, Somadayo (2011) stated that readers undertake activities by relating new information with old information to gain new knowledge. If readers have prior knowledge, they will feel that they have gained knowledge immediately after reading. Tarigan (2013) stated that reading comprehension is a type of reading to understand literary standards or norms, critical review, written drama (printed drama), and patterns of fiction in an effort to gain an understanding of the text by using specific strategies. In line with the statement above, Frye (2014) argues that successful comprehension requires readers to be able to think about their reading—an act of metacognition that leads readers to build connections, make inferences, synthesize, determine what is important, visualize, and generate questions.

Freund, Kopak, and O'Brien (2016) stated that understanding how to facilitate more effective and engaging online reading is very important. The results of this study strengthen and expand on previous research by showing that the results of reading comprehension and behavior are influenced by differences in how digital texts are presented to readers and the tools and features available. Both Plain Text and Interactive conditions had positive effects on comprehension outcomes for this academic reading study, but their contributions were not only supplementary. Interactivity is proven to add more value when the text is presented in context and is associated with factual knowledge and memory.

The student's reading comprehension ability is still low. It is closely related to the reality of student literacy in Indonesia, which shows that Indonesian students' language literacy is low. Some research results by PISA and PIRLS place students in Indonesia at the bottom in a decade, especially for language literacy. In 2003, the reading literacy achievement of students in Indonesia was ranked 39th out of 40 countries. In 2006, it was ranked 48th out of 56 countries. With similar results, in 2009, it was ranked 57th out of 65 countries, and then it was ranked 64th out of 65 countries in 2012. PIRLS conducted a study of 45 developed and developing countries in the field of reading with the participants of fourth-grade elementary school children around the world under the undercoordination of The International Association for the Evaluation of Educational Achievement (IEA) and obtained results that put Indonesia in the 41st place (Statistic, 2021) (Kharizmi & Almuslim, 2015).

Previous research in one of the elementary schools included in the 3T region showed that students' ability in reading comprehension is still low. Some students in class VI are not fluent and still read by spelling each letter. The strategies applied by the teacher in learning reading comprehension are also less varied, causing students to pay less attention to learning reading, especially reading comprehension. This situation seemed very concerning when interviewing the teacher. He stated that the teacher had never made any learning innovations in teaching reading comprehension. For example, they never used appropriate learning media relevant to the discussed material. As a result, students' reading comprehension skills

do not have any significant improvement because they are not encouraged by suitable learning media. One of the learning media that can be used to improve student's reading comprehension skills is a pop-up-based animated book.

According to Papatga and Ersoy (2016), reading comprehension can be improved using technology. In the results of his research, it was briefly seen that all students' reading comprehension skills developed thanks to reading comprehension activities carried out through the Scratch program. Based on these results, it can be said that this program can be used in reading comprehension activities at the elementary school level.

Animation is the collection of images that make up a movement. One of the advantages of animation over other media is static images or text can explain changing circumstances. According to Mayer and Moreno (as cited by Utami, 2011), there are several features of animation; (1) image–animation is a depiction; (2) motion—animation depicting a movement; (3) simulation—animation that consists of objects created by drawing or other simulation methods. So far, animations are attracting media for two reasons. First, to attract students' attention and strengthen motivation. This type of animation is usually in the form of writing or moving pictures, as well as funny and weird animations that might catch students' attention. The second function is as a means to provide understanding to students on the given material.

A study by Ortlieb, Sargent, and Moreland (2014) resulted that reading comprehension can be improved in reading clinics through various formats of instruction, either print-based or digital text-based. Explicit instruction of comprehension strategies (prediction, thinking aloud, text structure, visual representation of text, summaries, and questions/questions) led students to a significant increase in comprehension levels for all three treatment groups over the semester in a careful one-on-one scaffold, one mentoring program. Hybrid group participants spent their time in print-based tutoring and a personalized digital reading environment; students who receive this intervention gain comprehension on both measures: the IRI and the Lexile Framework for Reading. Researchers found digital reading environments important for classroom teachers who prioritize programs that quickly and effectively differentiate, accommodate, and restore reading skills. While these findings are consistent with previous research demonstrating the potential of digital reading environments, their use and application in reading clinics provide additional insight into effective options for reading remediation.

Ross, Pye, and Randell (2016) examined the effects of reading touchscreen storybooks with different levels of interactivity on the understanding of 7-year-old readers, storybook preferences, format preferences, and shared reading behavior. The findings supported the theory that the presence of interactive multimedia features places greater demands on information processing than reading printed materials and has a higher risk of cognitive overload due to the need to switch between different types of tasks. According to Mcnab, Fielding-Barnsley (2014), animated books have a significant influence on the reading ability of a person of elementary school age. The results showed that students with digitally integrated reciprocal media teaching differ from students with general learning models regarding reading ability and motivation. Digital media-integrated reciprocal teaching outperforms mainstream teaching models on reading skills and motivation. In other words, the use of digital integrated reciprocal teaching media can improve students' reading ability and motivation better than the general teaching model (Chu, 2021).

Pop-up books are developed as two- or three-dimensional illustrations so that they can support and facilitate students in learning (Alviolita & Huda, 2019). A pop-up book is a book that displays the potential for movement and interaction through the use of paper as a material for folds, rolls, shapes, wheels, or spins (Bluemel & Taylor, 2012). In its development, the role of the media is very important for supporting the formation of students' creativity in exploring learning, such as media. This pop-up book can help students solve problems more easily and improve concentration in listening so that it can improve reading comprehension (Putri et al., 2019).

A pop-up book can provide stimulation visually so that it can describe a concept that was initially abstract can be clear, entertaining, and attract attention so that students are enthusiastic about learning reading comprehension. Pop-up-based animated book media used in this research is a 3D book that contains material on Indonesian culture with the display of animated images. Fairy tales and stories provide a whole imaginary world created by language and pictures that children can enter and enjoy. Stories stimulate strong emotions of sympathy, anger, fear, anxiety, and so on, opening the door to language learning. Rich and colorful illustrations are used in most children's narrative books. They were mainly introduced to turning textbooks into dazzling and exciting objects (Mich et al., 2013).

Based on the qualitative findings of the study, students perceived that Augmented Reality (AR) technology has certain advantages. They considered the use of AR in a learning environment to be entertaining. It also facilitates comprehension, improves reading comprehension, and attracts, motivates, and aids information retention. In this case, it is argued that such applications should extend to test books, and interactive boards should be designed so that they can run AR applications directly. Given the positive characteristics of AR applications, it is considered the right time for them to be used in lessons (Bursali & Yilmaz, 2019).

Wang, Lee, and Ju (2019) examined whether various types of digital prototypes, namely flash animation, application books, and AR books, had an impact on children's interest and concentration when reading books that flash animation and AR books showed significant improvement. In terms of reading concentration, it is noted that only flash animation can cause considerable improvement. In contrast, two other prototypes tested in this study, application books and AR books, significantly reduced children's reading concentration. In short, among the three digital prototypes, only flash animation can significantly increase reading interest and concentration simultaneously.

AR books get kids interested in story books, but do not increase their reading concentration. App books, on the other hand, did not significantly increase children's interest in story books or improve their reading concentration. Application books and AR books significantly reduce children's reading concentration. This result can be explained by the differences in the interactivity of the prototype interfaces. Chaudhry (2014) experimented at an international school in Kuwait to study the impact of e-books on reading attitudes and showed that students enjoyed reading electronic media more than the paperback alternative. Students, however, finished reading paperback books in much less time. The interest shown by students, because they enjoy reading e-books, shows that e-books can be used for more interesting reading. There is great potential for using e-books to increase reading motivation and improve students' reading skills by leveraging the capabilities of e-books and e-readers.

METHODS

The research method is a scientific way to get data with specific purposes and uses (Sugiyono, 2016). This study employed a quantitative research approach. The method used in this research was the experimental method, using true experimental design as the research design. The type of research design employed in this study was post-test only control design.

In this study, two groups were selected randomly: the experimental group and the control group. The experimental group is the group that was given the treatment using a pop-up-based animated book. Supposedly, the control class is the group that is not given any treatment, but in this study, the control class was taught using a picture textbook. In this study, the effect of treatment was analyzed by different tests using a t-test (Sugiyono, 2016). The data collection techniques used in this research are observation to find out student responses when using Pop-Up-based animated books on the ability to read comprehension in learning Indonesian. Interviews were also conducted to find out teachers' and students' responses, comments, and suggestions to evaluate the effectiveness of using Pop-Up-based animated books on reading comprehension ability in learning Indonesian. The interview was chosen to collect the data because the researcher can be closer to the source so that the information is obtained in greater depth.

In addition, researchers also used tests to find out students reading comprehension abilities. Arikunto (2013) explained that a test is a series of questions or exercises and other tools used to measure skills, knowledge, intelligence, abilities, or talents possessed by individuals or groups. The instrument was initially validated using the validity test and the reliability test. The normality test aims to see whether or not the samples are representative of the population distribution. Budiyono (2016) stated that the normality test could be used to test whether or not the sample comes from a normally distributed population. The normality test used in a study is the Lilliefors method. Sugiyono (2015) suggests that the homogeneity test is a test that is used to determine whether the variance of the two samples is the same (homogeneous). The homogeneity test in this study was conducted using the F test.

RESULTS AND DISCUSSION

The data in this study were obtained from the reading comprehension ability pretest and post-test scores of the fifth-grade students of elementary school at Sawojajar, Magetan, Indonesia. The experimental class is a class that is treated using pop-up animated book media. The pretest was carried out before the experimental class was given treatment. The test used is a test of reading comprehension ability in Bahasa Indonesia made in the form of multiple-choice test questions. The calculation results of the control class students' reading comprehension pretest scores were as follows: (1) the lowest score was 11, with a value of 37; (2) the highest score was 25, with a value of 83; and (3) the median was 17. Next, with the help of SPSS version 17, it can be seen that the average score (mean) is 17.65, and the standard deviation is 3.548. The frequency distribution of the reading skill pretest scores of the experimental class can be seen in the table 1.

Table 1. Frequency Distribution of Experimental Class Pretest Score

Interval	Frequency	Percentage
23.5 – 25.5	1	6.7 %
21.4 – 23.4	2	13.3%
19.3 – 21.3	3	20.0%
17.2 – 19.2	4	26.7%
15.1 - 17.1	2	13.3%
13.0 – 15.0	3	20.0%

Based on the table 1 above, it can be seen that the Indonesian reading comprehension pretest scores of the experimental class students have interval classes of as many as six classes, with an interval class length of 1.3. The following is a diagram of the frequency distribution of pretest scores of experimental class reading comprehension skills.

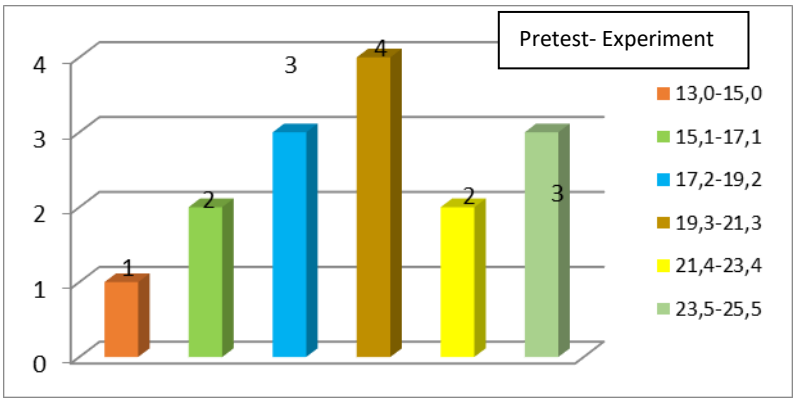

Figure 1. Histogram of Frequency Distribution of Reading Ability Pre-test Score of Experiment Class

Based on table 1 and figure 1 above, it can be stated that the experiment class students with the highest pretest score of Indonesian reading ability are located in the interval of 19.3 – 21.3 with a frequency of 4 students (26.7%). On the other hand, those with the lowest Indonesian reading comprehension pretest score are found in the interval 13.0 – 15.0 with a frequency of 1 participant (6.7%).

The control class is a class that is not treated using Pop-up animation book media but with picture textbooks. As well, as an experimental class, the pretest was carried out before the experimental class was given treatment and material. The results of the control class pretest are as follows: (1) the lowest pretest score was 4.3, while the highest was 6.3; (2) the median was 4.7; (3) the mode was 5.0; (4) the mean was 5.51; (5) and the standard deviation was 0.65. The frequency distribution table is made by determining the number of class intervals, calculating the range of data, and determining the length of the class. The frequency distribution of the Indonesian reading comprehension pretest score of control class students can be seen in the table 2.

Table 2. Frequency Distribution of Control Class Pre-test Score

Interval	Frequency	Percentage
24.5 – 25.7	1	6.7 %
23.2 – 24.4	2	13.3%
21.9 – 23.1	9	60.0%

Interval	Frequency	Percentage
20.6 – 21.8	2	13.3%
19.3 - 20.5	1	6.7%
18.0 – 19.2	0	0.0%

Based on the table 2, it can be seen that the Indonesian reading comprehension pretest score of the experimental class students has 6 class intervals, with the length of the interval class being 1.2. The following is a diagram of the frequency distribution of the pre-score test of the experimental class's reading comprehension ability.

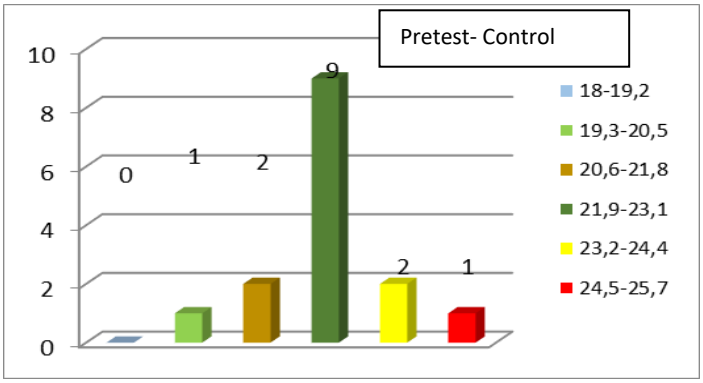

Figure 2. The Frequency Distribution Histogram of the Reading Comprehension Pre-test Scores of the Control Class Students

Based on table 2 and figure 2 above, it can be inferred that the control class students with the highest Indonesian reading comprehension pretest scores lie on the interval of 21.9 – 23.1, with a frequency of 9 students (60.0%). On the other hand, those with the lowest scores are found in the interval of 19.3 – 20.5, with a frequency of 1 student (6.7%).

Based on the results of the data obtained from the experimental class post-test, the post-test data had the lowest score of 5.7, the highest score of 7.0, a median of 6.0, a mode of 6.0, a mean of 7.03, and a standard deviation of 0.60. Frequency distribution table creation is done by determining the number of interval classes, calculating the data range, and determining the class length. The frequency distribution of the Indonesian reading comprehension post-test score of experimental class students can be seen in the following table.

Table 3. Frequency Distribution of Experimental Class Post-test Scores

Interval	Frequency	Percentage
36.0 – 37.3	3	20.0 %
34.6 – 35.9	4	26.7%
33.2 – 34.5	6	40.0%
31.8 – 33.1	1	6.7%
30.4 – 31.7	1	6.7%
29.0 – 30.3	0	0.0%

Based on the table 3, it can be seen that the Indonesian reading comprehension post-test score of the experimental class has an interval of six classes, with an interval class

length of 1.3. The following is a diagram of the frequency distribution of pretest scores of experimental class reading comprehension skills.

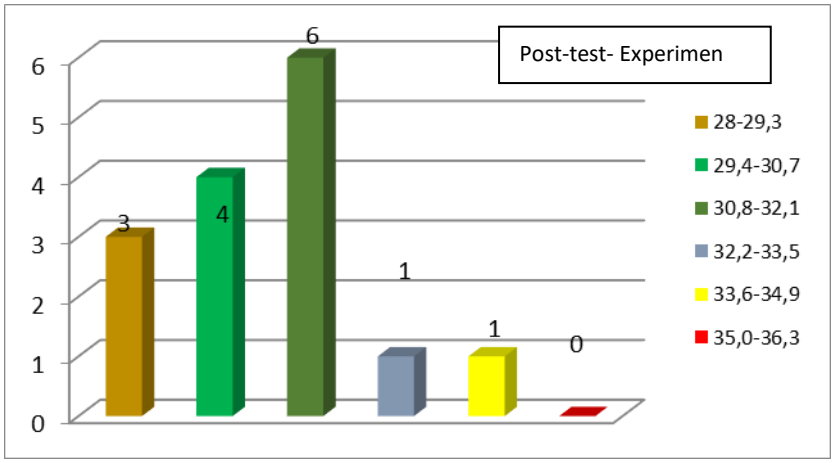

Figure 3. The Frequency Distribution Histogram of the Reading Ability Post-test Scores of the Experiment Class

Based on table 3 and figure 3 above, it can be inferred that the highest Indonesian reading comprehension post-test scores of the experiment class students are located in the interval 30.8 – 32.1, with a frequency of 6 students (40.0%). On the other hand, those with the lowest Indonesian reading comprehension post-test scores are found in the interval 33.6 – 34.9 with a frequency of 1 person students (5.7%).

Based on the data obtained from the control class post-test, the lowest score is 5.7, the highest score is 7.0, the median is 6.0, the median is 6.0, the mean is 7.03, and the standard deviation is 0.50. Frequency distribution table creation is done by determining the number of interval classes, calculating the data range, and determining the class length. The frequency distribution of the Indonesian reading comprehension post-test score of control class students can be seen in the following table:

Table 4. Frequency Distribution of Control Class Post-test Scores

Interval	Frequency	Percentage
28.5 – 29.7	1	6.7%
27.2 – 28.4	1	6.7%
25.9 – 27.1	2	13.3%
24.6 – 25.8	7	46.7%
23.3 – 24.5	2	13.3%
22.0 – 23.2	2	13.3%

Based on the table 4 above, it can be seen that the Indonesian reading comprehension post-test score experimental class students have 6 class intervals, with the length of the interval class being 1.3. The following is a diagram of the frequency distribution of the pre-score test of the Indonesian reading comprehension of the control class.

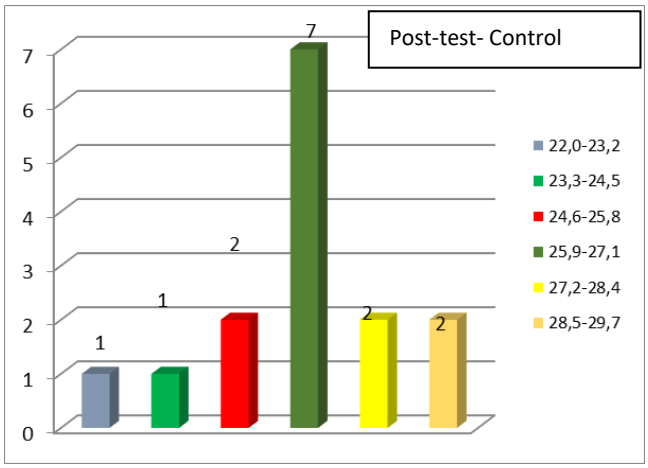

Figure 4. Histogram of the Frequency Distribution of Ability
Post-test Scores Reading Control Class

Based on table 4 and figure 4 above, it can be inferred that the highest Indonesian reading comprehension post-test scores of the experiment class students are located in the interval of 25.9 – 27.1, with a frequency of 7 students (46.7%). On the other hand, those with the lowest are found in the interval 22.0 – 23.2, with a frequency of 1 person students (6.7%). The data on the distribution normality test were obtained from the results of the experimental and control classes' pretest and posttest scores. The data is said to be normally distributed if the level value of the calculated significance is greater than the significance level value (0.05). Here are the normality test results for each research variable.

Table 5. Normality Test Results

Variable	**P (sig.)**	**A**	**Kolmogrov -Smirnov**	**Z-table**	**Information**
Post-test Experiment	0.557	0.05	0.631	1.97	Normal
Post-test Control	0.576	0.005	0.590	1.97	Normal

The homogeneity of variance test is used to determine whether the sample taken of the population comes from the same variance and shows no difference significant to each other. The condition for the variance to be homogeneous is if the value of Fcount is smaller than that of Ftable at the significance level of 0.05. The summary of homogeneity test results of data variance is presented in the following table.

Table 6. Normality Test Results

Group	**Db**	**Fcount**	**Ftable**	**P**	**Information**
Post-test Experiment	1:61	2.565	4.001	0.129	Fh < Ft = Homogen
Post-test Control	1:61	1.546	4.001	0.145	Fh < Ft = Homogen

Based on the table 6, it can be concluded that the Fcount of the pretest and post-test data of the experimental group and the control group is smaller than the Ftable, and the significance values are greater than 0.05 ($p > 0.05$). It means that the pretest and post-test data of the two groups are homogeneous. Thus, they meet the requirements for conducting a

t-test. Based on the t-test calculation, it can be concluded that there are significant differences in Indonesian reading comprehension scores between those taught using Pop-Up-based animated book media and those taught using conventional media. The complete data is presented in the following table.

Table 7. Results of Post-Test T-Test Reading Comprehension

Group	Mean	T-count	T-tabel	Sig.	Information
Post-test Experiment	7.03	2.6667	2.001	0.008	Tcount > ttable or sig < 0.05 = significant
Post-test Control	6.99			0.008	

Based on the analysis presented in the table 7 above, the mean of each class can be seen. The experimental class has an average score of 7.03, while the control class is 6.99, which means that the average score of the experimental class is greater (7.03 > 6.99). Apart from using the mean value, it will also be explained statistically with the Tcount results of the Indonesian reading comprehension post-test, which is 2.6667 with a significance value of 0.008. Then the value of Tcount is consulted with the value of the table at the significance level of 0.05, which is 2.00. This shows that the value of Tcount is greater than Ttable (2.6667 > 2.00). Next, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted because the significance value of the data is smaller than the value of the 5% significance level (0.008 < 0.05). Thus, there is a significant difference between those taught using Pop-Up-based animated book media and those taught using conventional media. An effectiveness calculation can be performed to test the effectiveness of using Pop Up-based animated books media compared to conventional media. The results of the effectiveness calculation can be seen in the following table.

Table 8. Calculation of Effectiveness

Group	Average	Gain Score	Effectiveness
Post-test Experiment	7.15	0.356	6.13
Post-test Control	6.80		

Based on the calculations, the average pretest score between the experimental and control classes was 6.975. The results of the effectiveness calculation were obtained by calculating the difference between the experimental class and control class post-test means, divided by the pretest mean, and multiplied by 100%. The calculation result is 6.13%, so the alternative hypothesis (Ha) is accepted, meaning that learning using Pop Up-based animated book media is more effective than learning using conventional media. Next, the second hypothesis in this study was accepted with an effectiveness value of 7.13%.

The use of Pop Up-based animated book media is more effective compared to the use of conventional media. The research data results show that the average post-test score of the experimental class was higher than the pretest results (7.03 > 6.99). From the average score, it can be seen that there is a difference between classes taught with pop-up-based animated book media and those taught with conventional media. It can be seen from the test results, which show that the Tcount value is greater than the Ttable value at the significance level of 0.05. The Tcount value of the post-test is 2.688, with a significance value of 0.009. Based on this result, the Tcount is greater than the Ttable (2.6667 > 2.00). The significant value,

which is smaller than 0.05 (0.008 < 0.05), suggests a significant difference between classes taught using pop-up-based animated books and conventional media.

Learners taught using pop-up-based animated book media are more enthusiastic to follow than those not taught using the same media. Students were more enthusiastic and interested in reading activities in the classroom by using pop-up-based animation media. Pop-up-based animation used in this research is one of the alternative learning media to support online learning during this Covid-19 pandemic. The results of this study are a theoretical perspective that the ability to read comprehension is one of the most important factors in the ability to appreciate short stories. The purpose of reading comprehension is to gain understanding or information from reading as a whole so that the readers can connect old information with new information. Thus, reading comprehension can help students in short story appreciation activities.

Through reading comprehension, students will gain in-depth knowledge and comprehension of reading and foster an appreciation of literature. As a result, students will quickly determine and understand the element builder of the short stories they read and can apply them in everyday life. In addition, Harlin (2015) stated that students who have a good understanding of reading will find it easier to understand the problem so that they can solve the story problem better. To improve Indonesian reading comprehension ability, media—such as pop-up-based animation media—have to be utilized to enable more innovative and varied learning so that students have a higher interest and enthusiasm in following classroom learning. The results of the current study are similar to those of a study by Danaei et al. (2020), which shows that students better understand stories through the mediation of AR tools. Electronic storybooks are very interesting because they not only simulate the experience of reading or listening to stories, but also provide enhancements to technology that makes the reading experience qualitatively different from traditional paper books. Electronic books usually contain a combination of features, such as animated images, background sounds, and music which dramatize the text. Most books also include interactive hypermedia elements such as animations which the child can activate with a mouse click or a touch on the screen (Bus et al., 2015).

The result of this study is also in line with a study by Huang et al. (2012), with quite positive results of 166 elementary school students using digital books. Based on our findings, E-books are found to be more acceptable than printed books. Although a significant difference in reading accuracy between reading e-books and printed books is not found, this study's learning process tracking technique can provide a detailed and visible learning process that a printed book cannot offer. This technique can record individual learning activities to build a relationship between instructors and parents. The recorded information can be used further to adapt an intelligent personal learning environment by adopting some state-of-the-art computer technology. Digital texts can offer additional support for students who acquire additional languages; for example, by providing a hyperlink to create a personal dictionary along with sentences or pictures, or by recording students' voices using new vocabulary in a text summary. Further research is needed to find ways to incorporate new technologies into literacy practice has shown promise with linguistically diverse learners (Martin-Beltrán et al., 2017).

When teachers apply resources effectively, they create more opportunities for students to derive meaning from the text by offering multiple formats for students to understand the

content and use various sources that make reading easier. Moreover, children are more motivated when teachers use electronic books (Morgan, 2013). The research results show that adding animation to verbal explanations helps students remember information immediately, but they do not use this information to answer inference questions. In addition, this multimedia effect depends on whether students are given a verbal explanation, either in oral or written form. There are live multimedia effects only if the animation is accompanied by spoken texts, not written texts (Scheiter et al., 2014). Furthermore, the research showed that reading stories digitally with highlighted text is a different context in which small children may pay attention to the text and improve their reading skills. This result supports the idea that doing more powerful manipulation with text instead highlighting only (for example, zooming in on words during reading) can lead to a more significant effect on children's word reading skills (Korat & Shamir, 2012).

The results of the study proved that learning using Pop Up-based animated book media is more effective than conventional media in improving the Indonesian reading comprehension of fifth-grade elementary school students from Sawojajar, Magetan. The pop-up-based animation book media makes students more enthusiastic about reading activities. By using pop-up-based animation media, students who are not very fluent in reading can be helped with the presence of animated images with interesting content so that students are also helped to understand reading content. The result is in line with Lerner's opinion (as cited by Dalman, 2013) that reading ability is a foundation for mastering various fields of study. If children at the beginning of school age cannot read, they will experience many difficulties in reading multiple fields of study in subsequent classes. Therefore, children must learn to read so that they can read to learn.

CONCLUSION

Based on the results and discussion above, it can be concluded that learning using Pop Up-based animated book media is more effective than conventional media in improving the Indonesian reading comprehension of fifth-grade elementary school students from Sawojajar, Magetan. The Pop Up-based animated book can be an alternative media for teachers in Indonesian learning, especially in teaching reading comprehension ability for elementary school.

REFERENCES

Alviolita, N. W., & Huda, M. (2019). Media Pop Up Book dalam Pembelajaran Bercerita. *Jurnal Pendidikan Bahasa Indonesia*, *7*(1), 49-57.

Anwas, O. M. (2013). Kontribusi Pemanfaatan Teknologi Informasi dan Komunikasi di Daerah Tertinggal Contribution of Information and Communication Technology Utilization in The Underdeveloped Area. *Jurnal Teknodik*, 018-028.

Arikunto, S. (2019). *Prosedur penelitian suatu pendekatan praktik*. Jakarta: Rineka Cipta

Bluemel, N., & Taylor, R. L. H. (2012). *Pop-up Books: A Guide for Teachers and Librarians*. ABC-CLIO.

Budiarti, W. N., & Haryanto, H. (2016). Pengembangan media komik untuk meningkatkan motivasi belajar dan keterampilan membaca pemahaman siswa kelas IV. *Jurnal Prima Edukasia*, *4*(2), 233-242. doi: 10.21831/jpe.v4i2.6295.

Bursali, H., & Yilmaz, R. M. (2019). Effect of augmented reality applications on secondary school students' reading comprehension and learning permanency. *Computers in Human Behavior*, *95*, 126-135. doi: 10.1016/j.chb.2019.01.035.

Bus, A. G., Takacs, Z. K., & Kegel, C. A. (2015). Affordances and limitations of electronic storybooks for young children's emergent literacy. *Developmental Review*, *35*, 79-97. doi: 10.1016/j.dr.2014.12.004.

Chaudhry, A. S. (2014). Student response to e-books: study of attitude toward reading among elementary school children in Kuwait. *The Electronic Library*. doi: 10.1108/EL-04-2012-0041.

Chu, Z. (2021). Effects of Digital Media Integrated Reciprocal Teaching on Students' Reading Ability and Motivation. *Revista de Cercetare Si Interventie Sociala*, (73):299–311. doi: 10.33788/rcis.73.19.

Dalman. (2013). *Menulis Karya Ilmiah (3rd ed.)*. Jakarta: Rajawali Pers.

Danaei, D., Jamali, H. R., Mansourian, Y., & Rastegarpour, H. (2020). Comparing reading comprehension between children reading augmented reality and print storybooks. *Computers & Education*, *153*, 103900. doi: 10.1016/j.compedu.2020.103900.

Fathonah, F. S. (2016). Penerapan Model Poe (Predict-Observe-Explain) Untuk Meningkatkan Keterampilan Membaca Pemahaman Siswa Kelas Iv Sekolah Dasar. *Jurnal Pendidikan guru sekolah dasar*, *1*(1), 171-178. doi: 10.17509/jpgsd.v1i1.9070.

Freund, L., Kopak, R., & O'Brien, H. (2016). The effects of textual environment on reading comprehension: Implications for searching as learning. *Journal of Information Science*, *42*(1), 79-93. doi: 10.1177/1045389X14554132.

Frye, S. K. (2014). *The implications of interactive eBooks on comprehension*. Rutgers The State University of New Jersey-New Brunswick.

Harlin, A. T. (2015). Hubungan Antara Kemampuan Membaca Pemahaman dengan Kemampuan Menyelesaikan Soal Cerita Matematika Siswa Kelas IV SDN Se-Gugus 3 Imogiri Bantul. *Universitas PGRI Yogyakarta*.

Hartati, T. (2017). Multimedia in literacy development at remote elementary schools in West Java (multimedia dalam pengembangan literasi di sekolah dasar terpencil Jawa Barat). *Edutech*, *15*(3), 301-310. doi: 10.17509/edutech.v15i3.4873.

Huang, Y. M., Liang, T. H., Su, Y. N., & Chen, N. S. (2012). Empowering personalized learning with an interactive e-book learning system for elementary school students. *Educational Technology Research and Development*, *60*(4), 703-722. doi: 10.1007/s11423-012-9237-6.

Kharizmi, M. (2015). Kesulitan Siswa Sekolah Dasar Dalam Meningkatkan Kemampuan Literasi. *Jupendas*, *2*(2), 11–21.

Korat, O., & Shamir, A. (2012). Direct and indirect teaching: Using e-books for supporting vocabulary, word reading, and story comprehension for young children. *Journal of Educational Computing Research*, *46*(2), 135-152. doi: 10.2190/EC.46.2.b.

Martin-Beltrán, M., Tigert, J. M., Peercy, M. M., & Silverman, R. D. (2017). Using digital texts vs. paper texts to read together: Insights into engagement and mediation of literacy practices among linguistically diverse students. *International Journal of Educational Research*, *82*, 135-146. doi: 10.1016/j.ijer.2017.01.009.

McNab, K., & Fielding-Barnsley, R. (2014). Digital Texts, iPads, and Families: An Examination of Families' Shared Reading Behaviours. *International Journal of Learning: Annual Review*, *20*.

Mich, O., Pianta, E., & Mana, N. (2013). Interactive stories and exercises with dynamic feedback for improving reading comprehension skills in deaf children. *Computers & Education*, *65*, 34-44. doi: 10.1016/j.compedu.2013.01.016.

Morgan, H. (2013). Multimodal children's e-books help young learners in reading. *Early Childhood Education Journal*, *41*(6), 477-483. doi: 10.1007/s10643-013-0575-8.

Nahumury, A. P., & Antony, R. (2022). Semi-Online Learning as a Solution to the Digital Divide in Education in Frontier, Outermost, and Disadvantaged Regions (3T). *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, *8*(2).

Ortlieb, E., Sargent, S., & Moreland, M. (2014). Evaluating the efficacy of using a digital reading environment to improve reading comprehension within a reading clinic. *Reading Psychology*, *35*(5), 397-421. doi: 10.1080/02702711.2012.683236.

Papatga, E., & Ersoy, A. (2016). Improving Reading Comprehension Skills through the SCRATCH Program. *International Electronic Journal of Elementary Education*, *9*(1), 124-150.

Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, *8*(1), 133-141. doi: 10.1177/2347631120983481.

Priambodo, B. (2021). Peningkatan Minat Baca Pelajar Di Daerah 3T Butuh Tambahan Dukungan TIK. *Jendela Literasi Kita*. Retrieved (https://lpmpjatim.kemdikbud.go.id/jelita/peningkatan-minat-baca-pelajar-di-daerah-3t-butuh-tambahan-dukungan-tik/).

Putri, Q. K., Pratjojo, P., & Wijayanti, A. (2019). Pengembangan media buku Pop-Up untuk meningkatkan kemampuan menyimak tema menyayangi tumbuhan dan hewan di sekitar. *Jurnal Pedagogi Dan Pembelajaran*, *2*(2), 169-175. doi: 10.23887/jp2.v2i2.17905.

Ross, K. M., Pye, R. E., & Randell, J. (2016). Reading touch screen storybooks with mothers negatively affects 7-year-old readers' comprehension but enriches emotional engagement. *Frontiers in psychology*, *7*, 1728. doi: 10.3389/fpsyg.2016.01728.

Scheiter, K., Schüler, A., Gerjets, P., Huk, T., & Hesse, F. W. (2014). Extending multimedia research: How do prerequisite knowledge and reading comprehension affect learning from text and pictures. *Computers in Human Behavior*, *31*, 73-84. doi: 10.1016/j.chb.2013.09.022.

Somadayo, S. (2011). Strategi dan teknik pembelajaran membaca. *Yogyakarta: Graha Ilmu*, *28*.

Statistic, National Center for Education. (2021). Progress in International Reading Literacy Study (PIRLS). *Https://Nces.Ed.Gov/Surveys/Pirls/*.

Sugiyono. (2015). *Metode Penelitian Manajemen*. Bandung: Alfabeta.

Sugiyono. (2016). *Metode Penelitian Kuantitatif Kualitataif dan Kombinasi (Mixed Methods)*. Bandung: Alfabeta

Tarigan, H. G. (2013). *Membaca sebagai Suatu Keterampilan Berbahasa*. Bandung: Angkasa

Utami, D. (2011). Animasi Dalam Pembelajaran. *Majalah Ilmiah Pembelajaran*, *7*(1), 44–52.

Wang, L., Lee, H., & Ju, D. Y. (2019). Impact of digital content on young children's reading interest and concentration for books. *Behaviour & information technology*, *38*(1), 1-8. doi: 10.1080/0144929X.2018.1502807.

Zhenlong, C. H. U. (2021). Effects of Digital Media Integrated Reciprocal Teaching on Students' Reading Ability and Motivation. *Revista de Cercetare şi Intervenţie Socială*, (73), 299-311. doi: 10.33788/rcis.73.19.

Zulela. (2012). *Pembelajaran Bahasa Indonesia*. Bandung: Remaja Rosdakarya.