The use of photo comics media: Changing reading interest and learning outcomes in elementary social studies subjects

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Abstract

Reading is useful for gaining understanding, knowledge, and information. This study aimed to determine the effect of using photo comics media on reading interest and learning outcomes in elementary social studies subjects. This research is a quasi-experimental study with a Non-equivalent Pretest-Posttest Control Group Design. The subject of this study is elementary students at the fifth grade level. Data obtained through the implementation of direct learning to school by assessment using questionnaires and tests. Analysis of the data using the t-test. The results showed that the use of photo comics media has a significant positive effect on reading interest and student learning outcomes. This was evidenced after a positive change in asking students to read after being treated with photo comics media. In addition, student learning outcomes are satisfactory after integrating photo comic media in learning activities.

Keywords: learning outcomes, photo comics, reading interest, social studies;

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1. Introduction

The current learning process must be in line with technological developments. This is very important because education is the capital for the success of a child as the nation's next generation (Idris et al., 2012). In this case, teachers are the most influential actors in educational activities (Malkab et al., 2015; Tjabolo & Herwin, 2020). This is because the teacher is the person responsible for integrating technology in learning activities so that the learning objectives can be maximally achieved.

Learning is a process of student interaction with teachers and learning resources in a learning environment. Ideally learning builds interactions where learning objectives in the form of learning outcomes can be achieved optimally (Wuryandani & Herwin, 2021). Learning in elementary schools is carried out in an integrative thematic manner which provides a variety of activities for students to explore themes or topics. One of the activities is to explore themes through reading activities. Reading is a process to gain understanding and a large part of knowledge and information.

The desire to read is needed to strengthen mastery of science and technology that continues to develop (Dewi et al., 2020). If children like to read, then they have the potential to gain new insights and develop them for the provision of further experiences in the future (Putro & Lee, 2017). Reading activities can expand individual knowledge so that it continues to grow and develop. Knowledge about a topic, linking the new information with information already known, built a character can be updated by reading. This shows the importance of reading activities. However, this activity will be successful if the public's interest in reading is high.

The results of a study by Central Connecticut State University's Most Literate Nations in The Word in 2016 show that Indonesia ranks 60th out of 61 countries. There are still many Indonesians who don't like reading activities, so it can be said that people's interest in reading in Indonesia is still low. Indonesia has a reading index of 0.001 which means that in every thousand people only one person has a high reading interest (Kasiyun, 2015).

The low interest in reading is also found in the elementary school environment. Factors that influence children's reading include the type or medium of reading and instruction from the teacher (Connor et al., 2009). The problem faced in learning is the inadequacy of supporting books so that teachers focus on textbooks from the government as teaching materials. The learning material in the textbook is not extensive, so teachers need various sources to develop themes. Students are more interested in reading storybooks with pictures than textbooks. Children often remember stories and use pictures as reading guides (Tompkins & Hoskisson, 1998). Lack of storybooks that contain learning material causes student's understanding of the material to be lacking and cognitive learning outcomes are low.

Comics are one of the pictorial stories that present a coherent and orderly storyline making it easier to recall. Comics are beginning to be used by some teachers as an educational tool that has the potential to develop students' interest in various academic subjects (Cleaver, 2008). Comics are used as an appropriate learning medium to increase reading interest and cognitive learning outcomes. Based on Piaget's theory, elementary school-age children (7-12 years) are at a concrete operational stage (Nurgiyantoro, 2013). Children aged fifth grade can reason logically as far as this reasoning can be applied to specific or concrete examples (Santrock, 2013).

Students will find it easier to understand the learning material if they look directly at the material being taught. The comics in this study use photographic images to depict the real object. Students tend to like coloured picture books and visualized in the form of realistic or cartoon. The photo comic used is a composition of photographic images and is equipped with dialogue text by the comic component. There is a combination of attractiveness of photo appearance, coherent flow, and easy understanding.

Previous research has been carried out with experiments using comic book media to increase reading interest and student learning outcomes with the results of the study showing that the use of comics influences reading interest and learning achievement of elementary school students (Fahyuni & Fauji, 2017). Based on this description, this research was conducted to prove the effectiveness of using photo comic media on reading interest and learning outcomes of fifth-grade students in elementary schools. The problem in learning is that reading interest is still low so that it affects student learning outcomes. Photo comic media have not been used and utilized for learning. This study aimed to determine the effect of using photo comic media on reading interest and learning outcomes of fifth-grade elementary school students.

2. Methods and Materials

2.1. Types of research

The design chosen in this study was quasi-experimental with Non-equivalent Control Groups (Creswell, 2012). The experimental group was given treatment while the control group was untreated. The research design is presented in the following table.

Table 1. Pretest-posttest control group design

Select Control Group	Pre-test	No Treatment	Post-test
Experimental Group	Pre-test	Experimental Treatment	Post-test

Table 1 shows that there are two groups, namely the experimental group and the control group. The experimental group is a class that was randomly selected to be given treatment by applying photo comic media to the learning process. Furthermore, the control group is also a class that was chosen randomly and then given treatment without using photo comic media but using media that the teacher always used in the previous days.

2.2. Population and sample

The population in this study were all fifth-grade students in Godean District. Determination of the sample using purposive sampling technique because sampling is based on the existence of certain objectives. The fifth-grade students of SD Negeri Semarangan 4 and SD Negeri Ngrenak (elementary schools in Indonesia) were selected as research samples. The research subjects totalled 51 students with details of 27 control class students and 24 experimental class students. The research data were obtained from the scores of students filling out questionnaires and written tests before and after the experiment.

Table 2. Research implementation procedures pretest-posttest control group design

Day		Meeting to						
		1	2	3	4	5	6	
Class	O_1			Experiment				O_2
	O_3			Control				O_4

Information:

O_1 = pre-test experimental class

O_2 = post-test experimental class

O_3 = pre-test control class

O_4 = post-test control class

2.3. Data collection technique

In the data collection process, the most important thing is the instrument, as a means of collecting data. Measurement of students' reading interest uses a questionnaire instrument, while student learning outcomes use test questions. The questionnaire was developed using a Likert scale with five answers. The Likert scale can be analysed using statistical parametric ANOVA (analysis of variant) or t-test (Boone & Boone, 2012). The developed test questions are arranged according to basic competencies and learning objectives. Before compiling the questionnaire and test questions, the instrument grid was drawn up as a guide.

The instrument was tried out to find reliability and validity. The validity of the instrument is proven by using content validity through an assessment by two experts. The results of the expert assessment indicate that the instrument used is valid based on the view of his expertise. The reliability of the instrument is proven by using empirical data from the test results. Reliability was calculated by Cronbach's Alpha method. The results of the analysis obtained a reliability coefficient of 0.85 for the questionnaire instrument and 0.82 for the learning outcome test. The reliability coefficient is the basis that the instrument used is more than 0.80 so that it can be categorized as reliable (Herwin & Nurhayati, 2021; Nájera Catalán & Gordon, 2020).

2.4. Statistical Hypothesis

In this study, the hypothesis is formulated to compare the two groups observed. This is formulated to be a guideline in analysing data to determining findings and drawing research conclusions. The following is the formulation of the hypothesis used to work and analyse the data.

$H_0: \mu_1 \leq \mu_2$

$H_a: \mu_1 > \mu_2$

where

μ_1 is the mean of observations in the experimental group,

μ_2 is the mean of observations in the control group.

2.5. Data analysis technique

The data collection technique used was the written technique. The data obtained were analysed using the SPSS 24 program with α used is 0.05. The data first went through the homogeneity test using the Kolmogorov-Smirnov test and the data normality test using the Levene Quality test. The analysis technique used is the statistical analysis technique of independent parametric t-test, with if $t_{count} \geq t_{table}$, then this study indicates that there is an influence between the two variables.

3. Results

This research is focused on the use of photo comic media in learning activities in elementary schools. Basically, this learning media has nuances like children's comics in general. However, what distinguishes this media is that the images used are photos that have been taken deliberately and are specially set to follow the storyline. Furthermore, the story line in the comic is integrated with the learning objectives that want to be conveyed to students. In addition, the contents of the comic media that are developed and used are of course in accordance with the primary school curriculum used in Indonesia. Figure 1 below presents a sample cover of comic media used in learning activities.

Figure 1. Example of a comic media cover

Figure 1 presents an example of a comic media cover for the subject of Theme 7 "National Incidents Around Indonesian Independence". This is one of several themes used in learning activities in elementary schools. In addition, examples of the contents of the comic media used can be seen in Figure 2 below.

Figure 2. Examples of comic media content

Figure 2 is an example of a situation that is told on the comic content page. In this study, this media was used in the treatment group. While the control group was given activities without photo comic media, but the media was generally applied so far. The use of photo comic media affects students' reading interest and learning outcomes. This is evidenced by comparing reading interest and student learning outcomes from the experimental class using photo comic media with the control class applying conventional learning.

3.1. Normality test

The normality test uses the Kolmogorov Smirnov test to prove the suitability test for the observed variables. This test aims to determine the normality of the distribution of research data obtained. The results of the normality test are presented in the following table.

Table 3. Reading interest normality test result

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistic	df	Sig.	Statistic	df	Sig.
Reading Interest	Experiment al	.111	24	.200[*]	.932	24	.106
	Control	.177	27	.029	.921	27	.052
*. This is a lower bound of the true significance							
a. Lilliefors Significance Correction							

Table 4. Learning outcomes normality test result

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistic	df	Sig.	Statistic	df	Sig.
Learning	Experiment	.126	24	.200[*]	.930	24	.095
Outcomes	al	.140	27	.190	.948	27	.196
	Control						
*. This is a lower bound of the true significance							
a. Lilliefors Significance Correction							

Based on the output Table 3 and Table 4, it is known that the df value (degrees of freedom) for the Experiment Class 24 and the Control Class is 27, meaning that the number of data samples for each group is less than 50. To detect data normality in this study, Shapiro-Wilk was used. Based on the result in Table 3, it is known to value Sig, for Experimental Class at 0.106 and the value of sig for Control Class at 0.052. Based on the results in Table 4, it is known that the Sig value for the Experimental Class is 0.095 and the Sig value for the Control Class is 0.196. Because both groups are > 0.05, as the basis for decision making in the Shapiro-Wilk normality test above, it can be concluded that the data on reading interest and student learning outcomes for the Experiment Class and Control Class are normally distributed.

3.2. Homogeneity test

The homogeneity test is used to determine whether the variations in the population are the same or not. The homogeneity test of two classes, namely the experimental class and the control class, used Levine's test. The homogeneity test table for all variables is presented as follows.

Table 5. Homogeneity test result of reading interest test of homogeny of variance

		Levene Statistic	df1	df2	Sig.
Reading Interest	Based on Mean	.347	1	49	.558
	Based on Median	.641	1	49	.427
	Based on Median and with adjusted df	.641	1	49.000	.427
	Based on trimmed mean	.427	1	49	.517

Based on the results presented in Table 5, it is known that the significance (Sig) value based on mean has amounted to 0.558 > of 0.05, so it can be concluded that the variance group post-test grade experimental and post-test grade control is the same or homogeneous for reading interest variables. Therefore, the use of the t test can be fulfilled and implemented in this study.

Table 6. Homogeneity test result of learning outcomes test of homogeny of variance

	Levene Statistic	df1	df2	Sig.

Learning Outcome	Based on Mean	.907	1	49	.346
	Based on Median	.531	1	49	.470
	Based on Median and with adjusted df	.531	1	46.000	.470
	Based on trimmed mean	.894	1	49	.349

Based on the information in Table 6, it is known that the significance (Sig) value based on mean has amounted to 0.346 > of 0.05, so it can be concluded that the variance group post-test grade experimental and post-test grade control is the same or homogeneous for learning outcomes variables. Therefore, the use of the t test can be fulfilled and implemented in this study.

3.3. Hypothesis testing

After proving the normality of the data and the homogeneity of the data, the parametric assumptions can be made by continuing inferential analysis. In this study the data were analysed using an independent t test. The test results are presented as follows.

Table 7. Test result with independent sample t-test reading interest

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	10,887	,052	2,347	49	,030	-1,04630	3,01695
Equal variances not assumed			2,332	29,712	,042	-1,04630	3,14952

The output Levine's Test shows that the Sig. "Levine's Test for Equality of Variances" is equal to 0.052 > 0.05, it can be interpreted that the two groups of observed data come from the same variance. All observed data groups are homogeneous.

Based on the "Independent Samples Test" table output-Table of Reading Interests, "The assumption of the same variance" is known that the p-value is 0.030 < 0.05. This is the basis that H_0 is rejected. The results of this analysis indicate that the difference between the two groups is significant. Another thing can be said that the average reading interests in the experimental group showed a significant difference with the control group. Furthermore, based on the information in Table 7, it can be explained that the average value of "difference" is -1.046. This result explains that the mean difference in the two groups is 1.046.

Decision making through t $_{count}$ considerations compared to t $_{table}$. As a basis for determining the decision, criteria are set, namely if the value of t $_{count}$ ≤ t $_{table}$, then H_0 is accepted which indicates that the difference between the two groups is not significant. If the value of t $_{count}$ > t $_{table}$ then H_a is accepted

which indicates that the difference between the two groups is significant. The search results show that the t $_{table}$ coefficient is 2.005. The results of the analysis show that the t $_{count}$ is 2.347. These results indicate that t $_{count}$ > t $_{table}$. The results of the comparison show that the difference between the two groups is significant. The evidence shows that photo comics media affect reading interests in social studies learning.

Table 8. Test result with independent sample t-test learning outcomes

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | |
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	1,310	,258	2,285	49	,025	-,40741	1,43115
Equal variances not assumed			2,289	48,172	,026	-,40741	1,41001

The output Table 8 shows that the Sig. "Levene's Test for Equality of Variances" is equal to 0.258 > 0.05, it can be interpreted that the two groups of observed data come from the same variance. All observed data groups are homogeneous. Based on the "Independent Samples Test" table output-Table of Learning Outcomes, "The assumption of the same variance" is known that the p-value is 0.025 < 0.05. This is the basis that H$_0$ is rejected. The results of this analysis indicate that the difference between the two groups is significant. Another thing can be said that the average student learning outcomes in the experimental group showed a significant difference with the control group. Furthermore, based on the information in Table 8, it can be explained that the average value of "difference" is -0.407. This result explains that the mean difference in the two groups is 0.407.

Decision making through t $_{count}$ considerations compared to t $_{table}$. As a basis for determining the decision, criteria are set, namely if the value of t $_{count}$ ≤ t $_{table}$, then H$_0$ is accepted which indicates that the difference between the two groups is not significant. If the value of t $_{count}$ > t $_{table}$ then H$_a$ is accepted which indicates that the difference between the two groups is significant. The search results show that the t $_{table}$ coefficient is 2.005. The results of the analysis show that the t $_{count}$ is 2.285. These results indicate that t $_{count}$ > t $_{table}$. The results of the comparison show that the difference between the two groups is significant. The evidence shows that photo comics media affect learning outcomes in social studies learning.

4. Discussion

Based on data analysis and calculations from this quasi-experimental study, it shows that the reading interest of the experimental class using photo comics media has a more significant effect than the control class. Likewise, the learning outcomes of the experimental group using photo comic media had

a more significant effect than the control group. Photo comics are a learning medium that is useful for conveying messages in the form of learning materials with more interesting pictures and stories so that students are more interested in reading and understanding the messages in them.

The results of this study are in line with the results of previous studies that the effect of using comic media in learning is significant in reading interest and learning outcomes (Widyawati & Wijayanti, 2019). The use of comics is more interesting and affects the conceptual ability of the material so that it shows increased learning outcomes. Various research results agree to explain that comics have the potential to increase children's motivation and concentration (Cheesman, 2006; F. Kabapinar, 2005; Koutníková, 2017; Svatoš & Maněnová, 2017; Tatalovic, 2009; Wallner, 2017; Wiegerová & Navrátilová, 2017). This is very useful if integrated into learning activities.

Many students feel reading is a burden (DePorter et al., 2010). Some postpone reading activities until the last minute of learning, so they lose time to complete their reading assignments. The level of reading interest is influenced by several factors. Factors that influence children's reading include the type of media of reading and instruction from the teacher (Connor et al., 2009).

Increased interest in reading can be influenced by psychological development. Upper-class students have more curiosity and prefer something seen (visual) so that learning must be by the things that are around and are concrete. Photo comics present photographic images that show the surroundings and are real. Photo comics can be used as a learning medium to convey information to students so that understanding arises and fosters students' reading interest.

The use of manga (Japanese version of comics) in education has motivated students to read (Allen & Ingulsrud, 2010). Comic media can be used as a reading medium to convey difficult and fun material to be easy and fun (Waluyanto, 2005). Fun reading activities allow students to complete their assignments and their understanding will increase so that learning will be faster and get better results (grades).

The thing that is very emphasized is that the use of photo comic media is very relevant to the current situation and condition of the country, namely the Covid-19 pandemic. During a pandemic all learning activities are carried out at home (Herwin et al., 2020). This has an impact on the classroom situation where the teacher cannot meet face-to-face with students. Therefore, a distance learning innovation is needed that allows students to learn effectively. The use of photo comic media has relevance to this issue. The findings of this study highlight several things, namely the photo comic media provides flexibility in distance learning methods during the pandemic. Second, photo comic media can entertain students while studying at home. In addition, this photo comic media is very suitable for the pandemic situation where learning must utilize technology integration to overcome distance learning (Herwin et al., 2021). This is very important, because studying at home certainly has the potential for boredom for students. In addition, photo comic media can also be uploaded electronically without having to be printed first so that it is very easy to integrate in learning activities.

The findings of this study and some discussion of previous findings indicate that the use of photo comic media has a significant positive effect on reading interest and student learning outcomes. This was evidenced after a positive change in asking students to read after being treated with photo comic

media. In addition, student learning outcomes are satisfactory after integrating photo comic media in learning activities.

5. Conclusion

Based on the results of research and discussion of this study, it is concluded that the photo comic media has a significant positive effect on students' reading interest in elementary social studies subjects. This is evidenced by a significant difference between the group of students who were given the photo comic media treatment and showed that the group learning using photo comic media had a higher reading interest. The second conclusion is that comic media has a significant effect on improving student learning outcomes in elementary social studies subjects. This is evidenced by the fact that the group of students who were given the photo comic media treatment tended to have higher learning outcomes.

Based on the conclusion of this study, it is recommended that photo comic media be applied in learning activities in elementary schools. Because this media is very useful for both teachers and students, it is recommended that it be applied continuously in learning activities. In addition, for further research studies, it is suggested to analyse other facilitators that can be used from photo comic media, as well as their influence on student character such as skills, responsibility, honesty, and other characters.

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