

Implementation of Think Pair Share Cooperative Learning Model with Pop-Up Book Media to Improve Science Learning Outcomes

Dwi Rustanti¹, Nuril Huda^{2*}, Muhajir³

Master of Educational Technology Study Program, Faculty of Teacher Training and Education, Dr Soetomo University, Surabaya, Indonesia¹

Faculty of Teacher Training and Education, Dr Soetomo University, Surabaya, Indonesia^{2,3}

DOI: <https://doi.org/10.62872/b3zt5c63>

Abstract

This study aims to improve the learning outcomes of IPAS classes 3A and 3B at Pepe State Elementary School by using the Think Pair Share Type Cooperative Learning Model with Pop Up Book Media. The background of this study is the low average value of IPAS learning outcomes in both classes 3-A and 3-B at Pepe State Elementary School. This research uses a type of experimental quantitative research with a pre-Experimental Designone-Group (Pretest-Posttest Design) research design. The population in this study consisted of 29 students of class 3-A who were used as the experimental group and 28 students of class 3-B as the control group. In this study there was a significant increase in learning outcomes and critical thinking in the experimental group using the Think Pair Share Cooperative Learning Model with Pop Up Book media, namely from an average value of 60 to 78.46 or an increase of 18.46. While the control group also increased but not too significant from 60.35 up to 74.46 or up 14.16. While the results of the significance value between learning outcomes and critical thinking with the Think Pair Share Model approach with the help of Pop up book media <0.05 , namely 0.045 and 0.018 which means there is a significant relationship. From the results of these results it can be concluded that the use of the Think Pair Share Cooperative Learning Model using Pop Up Book media can increase the learning value and critical thinking of 3A class students at Pepe State Elementary School..

Keywords: Learning Model, TPS type Cooperative, Pop-Up Book Media, Learning Outcomes.

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□ Corresponding author

Email Address : nuril.huda@unitomo.ac.id

Received March 01, 2025 Accepted June 08, 2025 Published June 23, 2025

Introduction

According to Law No. 20 of 2003 concerning the National Education System, it states that "Education is a conscious and planned effort to create an environment and learning process that allows students to actively improve their potential to have spiritual abilities, noble morals, personality, self-control, intelligence, and skills needed for themselves, society, nation, and



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state". Quality education can be obtained if educators are able to carry out learning in accordance with learning objectives.(Ray et al., 2024)

One of the subjects in the independent curriculum for elementary school students is science, which is a combination of science and social studies subjects. Where this science studies living things and inanimate objects in the universe and their interactions, and studies human life as individuals as well as social beings who interact with their environment.

In an effort to create an effective, focused and educationally appropriate learning process, the learning process in elementary schools must include 21st century skills. According to Azizah(Putri et al., 2023)There are 4 21st century skills that must be mastered by students, namely: critical thinking, creativity and innovation, communication and collaboration.

According to Rusman (2015), learning outcomes can be used as a benchmark to determine how far the changes in students have occurred after receiving their learning experiences that can be observed and measured in the form of knowledge, attitudes, and skills. One of the causes of low student learning outcomes is because learning is less effective, centered on the teacher so that students are less active, resulting in boredom in learning (Subagyo & Arsana, 2021). In addition, the use of learning methods and media that tend to be monotonous makes students less enthusiastic about learning so that students' critical thinking skills are low. The same thing was also expressed by Hidayat(Primantiko et al., 2021)which states about the causes of low critical thinking skills of students, one of which is the use of inappropriate learning models in the learning process. The lack of learning innovation from teachers causes learning to be less meaningful and critical thinking skills are also low.

In fact, critical thinking is very necessary in solving problems in everyday life. Critical thinking skills are students' ability to analyze the problems faced, distinguish problems carefully, identify problems and collect information to solve problems. Buphate & Esteban,(Nuranafi & Rusnilawati, 2022). For this reason, in every learning activity, teachers should develop a critical thinking attitude through the use of appropriate learning methods, models and approaches, because according to...Sulistio & Haryanti, 2022(QOMARIA, 2023) In its application, learning models have different objectives, principles and main emphases so they need to be adapted to the needs of students.

One of the models in learning is the cooperative model. Cooperative learning is a learning model that can generate student activity, because cooperative learning is learning that is oriented towards cooperation in a group to solve problems with friends.(QOMARIA, 2023). According to Muhammad Noor (2010; 5) the stages of the cooperative learning model are as follows: (1) Delivering learning objectives and learning equipment, (2) Delivering information, (3) Organizing students into study groups, (4) Helping students learn in groups, (5) Evaluation or feedback, (6) Giving awards.

There are various types of cooperative learning models, one of which is the Think Pair Share (TPS) type. TPS is a type of cooperative learning designed to influence student interaction patterns. Think pair share is a learning model where students think independently about problems given by the teacher, then discuss with their partners and share the results of the discussion with friends in class.(Rukmini, 2020) In this model, students play an active role together with their group members by discussing to solve a problem. According to Frank Lyman as quoted by Arends (1997), Think Pair Share is an effective way to create a variety of classroom discussion atmospheres.

Steps in the model Think Pair Share According to Suyatno (2009:122), the following are: 1) the teacher delivers the material and competencies to be achieved; 2) students are asked to think about the material/problems delivered by the teacher; 3) students are asked to pair up with their next friend (one group of 2 members, can be 3 if the number of students is odd) and express their thoughts; 4) the teacher leads a small plenary discussion, each group presents the results of their discussion; 5) starting from this activity, the teacher directs the discussion to the main problem and adds material that has not been expressed by the students; 6) the teacher gives a conclusion; 7) closing. In this study, when students were asked to express their thoughts in groups, students and their groups presented them in the form of a pop-up book, then each group presented their discussion with the pop-up book media that they had made.

Apart from the learning model, selecting the right learning media is also very important for teachers in the learning process because in their opinion... (Angraini et al., 2024) that the use of learning media greatly helps teachers in improving the quality of learning. The same thing was also expressed by (Husein Batubara & Noor Ariani, 2015) who stated that learning media is one of the components that helps in conveying messages related to learning. For that reason, choosing the right learning media has a big influence on the success of learning.

One of the learning media is pop up book. Pop-Up Book is a book that has moving parts or has 3-dimensional elements and provides interesting story visualization, starting from the display of moving images when the page is opened. (Putri et al., 2024) In pop up book media, students can design according to the needs of the material and creativity of students. According to Masturah et al (2018) it is argued that Pop-Up Books are designed according to the needs of the material taught by students. In this study, because the subjects of this study were 3rd grade elementary school students, it is necessary to understand what a pop up book is and how to make various simple but interesting pop up books.

Pop-Up Books not only function as attractive visual media, but are also able to stimulate students' interest in learning through a fun and interactive approach. The use of pop-up books in learning, especially at the elementary school level, provides a more concrete and contextual learning experience (Rachman et al., 2022; Putri et al., 2024). Students can see, touch, and even be directly involved in the process of making the media, thus fostering a sense of ownership of the material being studied. This is in line with the principle of active learning, where students are not only recipients of information, but also as subjects who actively build their knowledge (Sugrah, 2019). In addition, through the process of making pop-up books, students are also invited to develop fine motor skills, critical thinking, and creativity (Qadry et al., 2024). Therefore, pop-up book media is an effective and relevant alternative to improve the quality of learning, especially in subjects that require visualization and imagination, such as Indonesian, Science, and Social Studies at the elementary education level.

Based on research conducted Puji Rahmawati¹, Gista Ayu Fatmala (2023) there was an increase in learning outcomes using the Think Pair Share Type Cooperative Learning Model.

Methodology

The methodology in this study is a qualitative methodology with the aim of determining the effect of using the Think Pair Share cooperative approach using pop-up book media for students in grades 3A and 3B at Pepe Sedati Elementary School, Sidoarjo.

The subjects of this study were students in class 3A and 3B of Pepe Sedati Elementary School, Sidoarjo in the 2024-2025 academic year. Where each class has 29 students for class 3-A and 28 for class 3-B. So the total sample in this study was 57 students.

The data collection techniques in this study were by using tests, interviews, and documentation. The tests used included pre-tests and post-tests. The pre-test was conducted on students before the researcher used the Think Pair Share cooperative approach using pop-up book media and the post-test after using by using pop up book media. The use of the Think Pair Share Cooperative Learning Model with pop up book media was carried out only in the experimental group. While the control group used expository learning. In this study, the multiple choice questions were used to measure learning outcomes while the essay question model was used to measure students' critical thinking skills.

The variables in this study include independent and dependent variables. Where the independent variable is the use of the cooperative learning model think pair share with pop-up book media. While the dependent variable is the average value of social studies and critical thinking skills of third grade students. Before conducting a hypothesis test using the t-test, a prerequisite test needs to be carried out, namely the normality test and the homogeneity test. In the normality test using the Shapiro Wilk Test

Result and Discussion

Before the research, the author conducted a pretest on class 3A and 3B of Pepe State Elementary School in the subject of science. Based on the results of the pretest of science learning for class 3A and 3B at Pepe State Elementary School Sedati Sidoarjo.

Table 1 Pretest Results

Class	Amount	Average value	Value above KKM	Value below KKM
3A	29	60	9	20
3B	28	60.35	9	19

Source ; Data management

Before conducting a hypothesis test using the t-test, a prerequisite test needs to be conducted, namely the normality test and the homogeneity test. The following are the results of the normality test of the post-test scores of learning outcomes and critical thinking skills of students using the t-test.i shapiro wilkpresented in table 2.

Table 2.Normality Test

Group	Significance level
Pretest experimental group	0.213
Posttest of experimental group	0.646
Pretest control group	0.613
Posttest control group	0.279

(Source: Data Processing Results)

Based on the normality test using the test *shapiro wilk* presented in table 2, shows that both Sig. values > 0.05 . Thus it can be concluded that the posttest value of learning outcomes and critical thinking skills of students in each application of the learning model is normally distributed.

Furthermore, a homogeneity test is carried out to determine whether the data obtained has the same variance or is homogeneous. The homogeneity test criteria in this study are if the sig. value > 0.05 then the data obtained from the research results are homogeneous.

Table 3. Homogeneity Test

Levene statistics	df1	df 2	sig
0.664	3	110	0.576

(Source: Data Processing Results)

From table 3 above, it can be seen that the sig. value of the homogeneity test using Levene's test at a real level of 5% shows a value of 0.576. With a sig. value > 0.05 , it can be concluded that the data obtained are homogeneous. using the t-test and simple correlation test. The t-test is used to determine the effectiveness of the Think Pair Share Cooperative Learning Model with Pop-Up Book Media on student learning outcomes, while the simple correlation test is used to determine the correlation of the Think Pair Share Cooperative Learning Model with pop-up book media on learning outcomes. There are three hypotheses that will be tested in this study, including:

1. First hypothesis H_0 : There is no difference between the use of the Think Pair Share cooperative learning model and pop up book media in improving students' Mathematics learning outcomes.

H_a : There is a difference in the use of the Think Pair Share cooperative learning model with pop-up book media in improving students' Mathematics learning outcomes.

Table 4. Independent t-test

sig
Independent t-test 0.043

(Source: Data Processing Results)

Based on table 4 above, it shows that the level of significance <0.05 is 0.043. So H_0 is rejected or H_a is accepted. Thus, it can be concluded that there is a difference in the average value of Mathematics learning outcomes, namely an increase with the use of the Think Pair Share Model with Pop-up Book Media.

2. Second hypothesis

H_0 : Implementation of the Think Pair Share Model with pop up book media is not effective in improving student learning outcomes.

H_a : Implementation of the Think Pair Share model with pop-up book media is effective in improving student learning outcomes.

Table 5. Paired t-test

Sig	
Independent t test	0,000

(Source: Data Processing Results)

Based on table 5 above, it shows that with a significance level of 0.00, which is <0.000 , H_0 is rejected or H_a is accepted. Thus, it can be concluded that the application of the Think Pair Share Model with pop-up book media is effective in improving student learning outcomes.

3. The third hypothesis

H_0 : There is no significant relationship between learning outcomes and critical thinking skills with the use of the Think Pair Share model using pop up book media.

H_a : There is a significant relationship between learning outcomes and critical thinking skills with the use of the Think Pair Share model using pop up book media.

In the third hypothesis using a simple correlation test (Bivariate Pearson), the following results of the simple correlation test are presented in table 9.

Table 6; Simple Correlation Test

		Learning outcomes	Critical thinking	Learning methods
Learning outcomes	Pearson Correlation	1	0.668	0.301
	Sig.		0.003	0.045
Method Learning	Pearson Correlation	0.301	0.672	1
	Sig.	0.045	0.018	

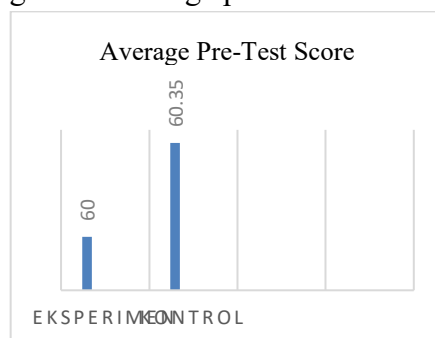
(Source: Data Processing Results)

Based on table 6, it can be seen that the significance value between learning outcomes and critical thinking with the Think Pair Share Model approach with the help of Pop up book media <0.05 . Namely 0.045 and 0.018 <0.05 . So it can be concluded that H_0 is rejected or H_a

is accepted. Thus, there is a significant relationship between learning outcomes and critical thinking skills with the use of the Think Pair Share model using Pop Up Book media.

This study used validates and reliability tests conducted in class 3-A and 3-B of Pepe State Elementary School where class 3-A consisted of 29 students and class 3-B consisted of 29 students. In this study, class 3-A was the control group while class 3-B was the experimental group. The following are the results of the average pretest scores of the experimental and control groups.

Figure 1. Average pretest score

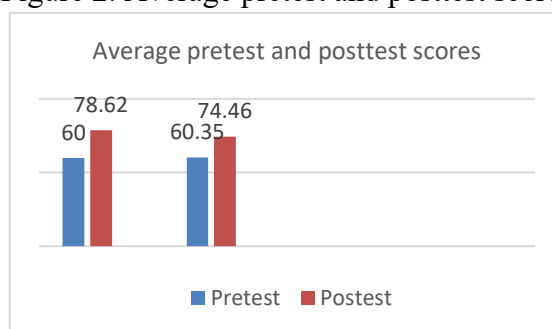


Source: Data Processing Results.

From Figure 1 above shows that the average pretest score of the experimental class is lower than the control group. The average score of the experimental group is 60 while the control group is 60.35.

Furthermore, to determine the effectiveness of using the Think Pair Share Cooperative Learning model with pop up book media, a posttest was conducted. The following are the results of the average values between the pretest and posttest in the experimental and control groups for students at Pepe Sedati Elementary School, Sidoarjo.

Figure 2. Average pretest and posttest scores

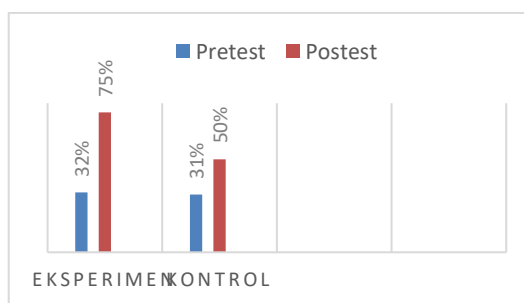


Source: Data Processing Results

From Figure 2, the average results of the protest value in the subject of science for classes 3-A and 3-B, for the experimental group using the cooperative learning model Think Pair Share with pop-up book media, there was an increase of 78.62 or an increase of 18.62. While for the control group that did not use the cooperative learning model think pair share using pop-up book media, there was an increase but not that big, namely from a pretest value of 60.35 to 74.46, or an increase of 14.11

In addition to the average score of the number of students who experienced an increase after using the cooperative learning model think pair share using pop up book media, the number of students who had scores above the KKM in the posttest also increased both from the experimental group and the control group. The following are the scores of students who were above the KKM during the pretest and posttest both from the experimental group and the control group at SD Negeri Pepe Sedati

Figure 3. Student Scores Above KKM Pretest and Posttest



Source: Data Processing Results

Based on Figure 3, the experimental group, the number of students who had scores above the KKM from 32% during the pretest. After using the Think Pair Share cooperative learning model with pop-up book media increased to 75% or increased by 44%. While the control group from 31% of students who had scores above the KKM during the pretest increased to 50%, an increase of 19%. Here it can be seen that from both research groups, both the experimental group and the control group, there was an increase. A significant increase in the number of students who had scores above the KKM occurred in the experimental group, which increased by 44%, while the control group that did not use the Think Pair Share cooperative learning model only increased by 19%.

Based on Figure 2 and Figure 3, it can be seen that there was an increase in the average value of students and the number of students with values above the KKM, especially in the control group that used the think pair share cooperative learning model with pop up book media.

In the use of cooperative learning model think pair share there are advantages and disadvantages. One of the obstacles researchers face in using cooperative learning model think pair share is when students discuss. There are still students who are still passive. For that teachers are required to be more active in providing encouragement and support so that students are more active in discussing.

Conclusion

Based on the results of the study, it can be concluded that there is a significant increase in the average learning outcomes of students using the Think Pair Share Cooperative Learning Model using pop-up book media. Where the pretest score which was initially 60 then after using the think pair share cooperative learning model increased to 78.62 or experienced an increase of 18.62. While the effect of using the think pair share cooperative learning model with pop-up book media on critical thinking skillsshow the numbers 0.045 and $0.018 < 0.05$ which means there is a significant relationship. From here it can be concluded that the use of cooperative

learning model think pair share with pop up book media in the field of science studies in class 3A SD Negeri Pepe can improve learning outcomes and critical skills.

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