

THE EFFECT OF COOPERATIVE SCRIPT LEARNING MODEL ASSISTED BY FLASHCARD IMAGE MEDIA ON THE ABILITY TO UNDERSTAND NATURAL SCIENCE (IPA) CONCEPT OF STUDENTS IN CLASS IV ELEMENTARY SCHOOL

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Abstract: This study aimed to determine the effect of Cooperative Script learning model assisted by Flashcard Image Media on the Understanding concepts of Class IV Students. This type of research is an experiment in the form of a *nonequivalent control group design*. The population in this study were students of SDN Jetis 01 and students of SDN Jetis 03 who were still in one cluster, then for the samples in this study were grade 4 students at SDN Jetis 01 and grade 4 students at SDN Jetis 03. The data collection instrument used observation, questionnaire, interview, test, and documentation. The data analysis technique is normality test, homogeneity test, *independent sample t-test*, and simple linear regression test. The results of the research show: (1) There are differences in the use of Cooperative Script model assisted by flashcard image media for the experimental class and Cooperative Script model only for the control class on the ability to understand concepts of fourth grade students, as evidenced by the significance level of $0.001 < 0.05$ using the *independent sample t-test* (2). There is an effect of using Cooperative Script model assisted by Flashcard Image Media on Concept Understanding of Class IV Students, as evidenced by a significance level of $0.000 < 0.05$ using a simple linear regression test. The results of this study can be concluded that the Cooperative Script learning model Assisted by Flashcard Image Media is influential in improving students' understanding of concepts.

Keywords: *Cooperative script* model, *flashcard* image media, understanding science concepts.

PRELIMINARY

Learning realizes the most important way to improve the quality of human resources (HR) to ensure the sustainability of the expansion of a country. The development of the quality of human resources is increasingly pressing to be achieved, especially in times of global competition. Because of that, the development of the quality of human resources from the beginning becomes the main thing to be upheld

(Susanto, 2013). Initially, learning was *teacher-centered* towards more innovative and student-centered learning. The learning model is a plan or pattern that can be used to shape the curriculum, design instructional materials and integrate the teaching process in the classroom or a different place (Joyco and Weill, 2014:72). Istarani (2014:15), stated a learning model in which students work in pairs and take turns orally summarizing the parts of the material being studied. According to Miftahul A'la (2012: 96) the Cooperative script model has the advantage that it teaches students to trust the teacher and believe more in their abilities to think, seek information from other sources and learn from other students, encourage students to express their ideas verbally and compare them with their friends' ideas. Students learn to trust the teacher and believe more in their ability to think, seek information from other sources and learn from other students, encourage students to express their ideas verbally, and compare them with their friends' ideas.

Understanding the concept is one of the main objectives of learning natural science (Ahmad Susanto, 2013:6) . Based on the results of observations made, shows that the students' ability to understand concepts is still low. This can be seen after the researchers conducted a preliminary study on fourth grade students of SDN Jetis 01 and SDN Jetis 03. Students still have not mastered the material being taught about understanding concepts. They tend to immediately write down the answers they know without understanding the problem of understanding the concept.

Observation can be interpreted as a technique in data collection that has specific and clear characteristics when compared to data collection techniques such as questionnaires and interview techniques (Sugiyono, 2016: 145). Based on the results of the preliminary study and if analyzed based on indicators of concept understanding, a total of 14 students of SDN Jetis 01 at the stage of understanding the concept of students on average 65% of students could not interpret, 70% of students could not summarize, 60% of students could not draw inferences or conclude, and 65% of students could not compare. Meanwhile, a total of 10 students at SDN Jetis 03 at the stage of understanding the concept of students on average 70% of students could not interpret, 75% of students could not summarize, 65% of students could not draw inferences or conclude, and 70% of students could not compare. Based on this

percentage, it can be seen that most students do not have knowledge about understanding the concept.

In connection with the low ability of students to understand natural science concepts, the efforts that can be given include using learning models and learning media that are appropriate and fun for students. Based on the existing conditions and circumstances, one of the learning models that can be applied is the cooperative script learning model. Because with this model, students are expected to be able to trust the teacher and have more confidence in their own ability to think, seek information from other sources and learn from other students, encourage students to express their ideas verbally and compare them with their friends' ideas.

Based on the results of interview, it was found that students like learning by using different learning media than usual, for example, flashcard image media because it was more practical and interesting, so it was suitable for elementary school children. Therefore, in addition to using a cooperative script learning model to assist students in learning to overcome the low ability of students' conceptual understanding, it is also necessary to use learning media that can also overcome these problems. Therefore, researchers used flashcard image media in repackaging the subject matter to make it more interesting and fun. Which is usually elementary school students will be interested in learning that uses pictorial media, and so on. Image media is a medium that serves to convey messages through images that involve the sense of sight (Cecep Kusnandi et al, 2013:41).

This research aimed to find out if there is a different ability to understand natural science concepts of students after using the *Cooperative Script model* assisted by Flashcard image media and for knowing the effect of *cooperative script* model on ability to understand natural science concepts of students in fourth grade elementary school. This study focus on students' concept understanding ability. In this study, it is hoped that later it will be able to become an alternative to improve students' conceptual understanding skills.

Based on the description above and the results of other people's research, it is necessary to conduct research related to "The Effect of Cooperative Script Learning Model Assisted by Flashcard Image Media on the Ability to Understand Natural Science Concepts of Grade IV Elementary School Students".

METHOD

This research is quantitative research which is research that is used to test a hypothesis by using various accurate statistical tests. The population in this study were all students of SDN Jetis 01 and SDN Jetis 03, while the sample was part of the number and characteristics possessed by the population (Sugiyono, 2016: 118), which used the fourth grade students of SDN Jetis 01 and students grade IV SDN Jetis 03 which is still located in one cluster. This study used several data collection techniques, namely tests and non-tests (observations, questionnaires, tests, unstructured interviews, and documentation). Initial data processing using validity, reliability, level of difficulty, and discriminating power. Meanwhile, for data analysis using normality test, homogeneity test, *independent sample t-test*, and simple linear regression test.

RESULTS

A. Results Test *Independent Sample T-test*

To find out the difference before and after the use of the cooperative script model with the aid of flashcard image media on the ability to understand the science concepts of fourth grade elementary school students, the researcher used the *independent sample t-test*. The results of the *independent sample t-test* obtained can be seen in the table below.

Table 1. Results Test Independent Sample T-Test

		Independent Samples Test								
		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	95% Confidence Interval of the Difference	
									Lower	Upper
Students' Natural Science Concept Understanding Ability	Equal variances assumed	6.425	.019	-3.353	22	.003	-14.643	4.368	-23.701	-5.585
	Equal variances not assumed			-3.086	13.587	.003	-14.643	4.744	-24.848	-4.438

Table 1 above shows that there is a difference in quality between the experimental class which was treated by applying the cooperative script model with the aid of flashcard image media and the control class which was only given treatment using the cooperative script model. Seen on $\text{sig} = 0.003 = 0.3\% < 5\%$ then H_0 is rejected or accept H_a . So the ability to understand the concept of the experimental class is different from the ability to understand the concept of control class. It can also be seen that the average for the experimental class is 52.50 which is greater than the average for the control class is 37.86. This proves that the concept understanding ability of the experimental class is better than that of the control class. So, it can be concluded that learning by applying a cooperative script model assisted by flashcard image media can change students' conceptual understanding abilities.

B. Results Test Simple Linear Regression

To determine the effect of the use of cooperative script learning model assisted by flashcard image media on the ability to understand science concepts in fourth grade elementary school students, the researcher used a simple linear regression test. The results of the simple linear regression test that have been obtained can be seen in the table below:

Tabel 2. Uji regresi linier sederhana

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	364.465	1	364.465	31.971	.000 ^a
	Residual	91.198	8	11.400		
	Total	455.664	9			
a. Predictors: (Constant), X						
b. Dependent Variable: Y						

The table above shows that the obtained value of $F = 31,971$, $\text{sig} = 0.000$. $\text{Sig} = 0.000 = 0\% < 5\%$ then H_0 is rejected and H_a is accepted. So, the equation above is linear or variable x (cooperative script model assisted by

flashcard image media) has a linear relationship to variable y (concept understanding ability). Thus, it can be concluded that there is an effect of cooperative script model assisted by flashcard image media on the ability to understand concepts of 4th grade elementary school students.

DISCUSSION

Based on the results of the *Independent Sample T-Test*, shows that there are differences in the results of the ability to understand concepts between the experimental class (SDN Jetis 03) which applies a cooperative script learning model assisted by image media, and the control class (SDN Jetis 01) which only apply the cooperative script learning model. This is evidenced by the results of the *Independent Sample T-Test* whose summary results are in table 1, it can be seen in the significant value which shows a value of $0.003 = 0.3\% < 5\%$, then H_0 is rejected or accepted H_a , which means there is an average difference in students' understanding of natural science concepts between the experimental class and the control class. In addition, from the average *post-test value* in each class, the experimental class has an average value of 52.50 where the average is higher than the control class which only has an average value of 37.86.

This is also due to the use of learning models and learning media so that the use of these learning media can help students understand the material or problems presented by the teacher in learning. Using the *Cooperative Script model* assisted by flashcard image media is very effectively used in realizing a good understanding of students' concepts and increasing their achievement. This is reinforced by Hakim et al., (2019) and Sundari and Andriana (2018) that the cooperative script learning model can improve students' understanding of concepts. The results of the percentage scores in the experimental class were superior to those in the control group. This affects the understanding of students' concepts, this is proven by the student questionnaire given by the researcher after being given learning the results increased to 92.56 for the control class and 80.83 for the experimental class.

This difference in comparison can be caused by the experimental group learning that was treated using tools as media so that students would tend to understand more quickly and easily understand and be able to learn to accept the material being taught and understanding of concepts would increase. This is in line with the opinion of

Setiawah (2015) that image media can help students to recognize the shape of real objects through image media and can train students in observing, describing, and also concluding so that the expected understanding of student material can be achieved.

From the results of the data that the researchers observed and student questionnaires, this difference was concluded from the *posttest value data* addressed to the two groups where the experimental group class that was treated had a higher average conclusion than the control class whose learning was not treated. Which stated that the use of tools as media in learning is very helpful for teachers and has a major contribution to the learning process occur so it can increase and arouse interest in learning in students, this conclusion is strengthened by Supriyono's research (2018).

By using the *Cooperative Script model* assisted by this flashcard image media students' understanding of concepts increases which has evidence that there is an increase and higher average *post-test* results in learning in the experimental class. This thing in line with the opinion of Gurnito (2016) achievements in learning could be seen from understanding, ability, and also from students' learning outcomes. The education system that uses the *Cooperative Script* model assisted by flashcard image media has a very efficient conclusion, then the results of student scores increase, so the use of this model and media is appropriate for the educational process. Researchers also use steps in implementing cooperative script syntax (Hidayat, 2017).

Based on the results of a simple linear regression test where X (cooperative script model assisted by flashcard image media) affects Y (concept understanding ability). Which results can be seen in the summary of table 2, it can be seen that the significance value is $0.000 < 0.05$, then there is an influence between the X variable (cooperative script model assisted by flashcard image media) on the Y variable (concept understanding ability). *Cooperative script* learning model assisted by *flashcard* image media can increase students' conceptual understanding with the average value in the experimental class before receiving treatment which is 47.04 and after treatment, it increases to 83.04. As for the control class, which only uses the *cooperative script learning model without being assisted by flashcard* image media, previously it got 59.92 and after being given treatment it got 79.57.

cooperative script learning model assisted by *flashcard* image media can improve students' understanding of concepts. This is reinforced by NH Iswari (2020),

the learning outcomes of the experimental class group are higher than the control class. There are differences in students' understanding of concepts after using the *cooperative script learning model assisted by flashcard image media* with groups using only the *cooperative script learning model*. This is reinforced by the results of research conducted by (Ermawati, eni, et al. 2019) which showed that the learning model applied to the experimental class, in this case the cooperative script-based inquiry learning model, can be said to be good because the results obtained indicate an increase.

In learning to use the cooperative script model assisted by flashcard image media, students are challenged to solve problems in understanding natural science concepts. Learning objectives help students to gain various experiences and with that experience student behavior increases both in quantity and quality. *Cooperative script learning* has the aim of empowering students' potential in actualizing their knowledge and skills in classroom learning (Agus Suprijono, 2014: 135). So that the cooperative script model assisted by flashcard image media is suitable for use in science learning, especially in understanding concepts.

Based on the results of the research described above, the *cooperative script learning model assisted by flashcard image media* has an effect on improving students' cognitive abilities. This is in line with Suprijono's (2011: 16) cognitive theory that knowledge emphasizes learning as an activity that involves complex thinking processes.

Cooperative script learning model assisted by flashcard image media is suitable for use in the material properties of sound related to the sense of hearing (ears) in class IV, the purpose of the *cooperative script learning model assisted by flashcard image media* is to increase students' insight and good cooperation with groups on problems in the environment so that they can improve understanding of the concept of sound properties related to the sense of hearing (ears) when learning is in progress. This is reinforced by the results of research conducted by (Fitriani. 2021) stating that learning using flashcards is included in appropriate category, and can be used as a learning resource during the natural science learning process.

From the observations made by researchers in the experimental group who were treated with the *cooperative script learning model assisted by flashcard image media*, it had a higher effect than the control group which only used the *cooperative script learning model* during treatment. Because the *cooperative script learning model* is the

delivery of teaching material that begins with giving a discourse or summary of teaching material to students who are then given the opportunity for students to read it for a moment and provide/input new ideas or thoughts into the teaching material given by teacher, then students directed to show the main ideas that are incomplete in the existing material alternately with their respective partners.

Students become more active and feel happy when discussing learning materials using a *cooperative script model* assisted by *flashcard image media*. This is appropriate with the observations that have been made by researchers, students feel interested when conducting joint discussions using *cooperative script learning assisted by this flashcard image media*. This is due to the existence of supporting media in the form of cards (*flashcards*) so that they can attract students' attention and increase student curiosity

According to Suryani, et al (2016) stated that the indicators of understanding are influenced by the mastery of concepts that students have. If the mastery of the concept is good, the indicators of understanding will also be good and vice versa. In addition, there is a significant difference between the experimental class which is treated with the *cooperative script learning model with the aid of flashcard image media* and the control class which is only given learning using the *cooperative script learning model*. The understanding of the measured concept is focused on the cognitive domain of understanding (Ela Suryani, 2019).

Based on the observation results of the experimental class students' conceptual understanding ability, each indicator of the conceptual understanding that became the problem increased between before and after being given treatment. Before being given treatment, the indicators that became student problems were indicators of interpretation of students who could not interpret reached 70%, indicators of summarizing students could not summarize reached 75%, indicators of attracting inference or concluding that students could not draw inferences reached 65%, and indicators comparing students did not can compare up to 70%. Meanwhile, after being given treatment for each indicator of students' conceptual understanding problems, the interpretation indicator becomes 30%, the summary indicator becomes 40%, the indicator draws inference or concludes becomes 20%, and the comparison indicator becomes 40%.

Based on the results of observation data before the treatment showed that the experimental class had an average of 52.13 with the "Less" category. While the results

of observation data after getting treatment showed an increasing result with an average of 83.21 in the "Good" category. From the results of the experimental class questionnaire during the learning process students were more happy and excited to use the learning model with the help of the learning media used by researchers. Because with the use of media, students do not get bored quickly and students become more interested in participating in ongoing learning. The results of students' understanding of concepts have an average of 80.83 in the "Good" category.

CONCLUSION

Conclusions based on the results of data analysis and discussion of the effect of cooperative script learning models assisted by flashcard image media on the ability to understand natural science concepts of fourth grade elementary school students, that is there are differences before and after the use of cooperative script learning models assisted by flashcard image media on the ability to understand natural science concepts of fourth grade students of elementary school. This is proven by the mean for the experimental class is 52.50 which is greater than the average for the control class is 37.86. Which of the two mean values obtained a significance level of $0.001 < 0.05$. So it can be concluded that there is a difference between before and after treatment. There is an effect of cooperative script learning model assisted by flashcard image media on the ability to understand science concepts for fourth grade elementary school students. This is evidenced by a significance value of $0.000 < 0.05$ which indicates that the variable x (cooperative script model assisted by flashcard image media) has a linear relationship to the variable y (the ability to understand concepts). Thus, it is known that there is an effect of cooperative script learning model assisted by flashcard image media on the ability to understand science concepts for fourth grade elementary school students.

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