Journal of Mathematics Education
~JME~
Website: http://usnsj.com/index.php/JME
Email: editor.jme@usnsj.com

The Impact of Script Type Cooperative Learning Model Implementation on Mathematics Learning Outcomes in Class VIII Junior High School Students

AUTHORS INFO
Chairuddin
Universitas Sembilanbelas November Kolaka, Indonesia
Chairuddin.spd@gmail.com

ARTICLE INFO
o-ISSN: 2528-2026
p-ISSN: 2528-2468
Vol. 6, No. 1, June 2021
URL: http://doi.org/10.31327/jme.v6i1.1600

Suggestion for the citation and bibliography
Citation in text:
Chairuddin (2021)

Bibliography:
Chairuddin (2021). The Impact of Script Type Cooperative Learning Model Implementation on Mathematics Learning Outcomes in Class VIII Junior High School Students. *Journal of Mathematics Education*, 6(1), 71-77. http://doi.org/10.31327/jme.v6i1.1600

Abstract

This is an experimental study to determine (1) the mathematics learning outcomes of class VIII students at SMP Negeri 16 Poleang Tengah after being taught using a script-type cooperative learning model on cube and block material; (2) the mathematics learning outcomes of class VIII students at SMP Negeri 16 Poleang Tengah after being taught using conventional learning models on cubes and blocks; and (3) the mathematics learning outcomes of students who are taught using a script-type cooperative learning model on cube and block material. The hypothesis of this study is that using the Script Type cooperative learning model to teach students mathematics is more effective than using traditional learning models on cube and block material in class VIII SMP Negeri 16 Poleang Tengah. The participants in this study were all students in class VIII, who were divided into three parallel classes with a total of 60 pupils. The Cluster Random Sampling approach was used to sample the two classes, one of which was designated as the control class and the other as the experimental class. A total of 40 people were included in the study from both classes. Data is retrieved through learning outcomes assessments, which are then utilized to collect information on students' math learning results. Descriptive and inferential statistics were employed in the data analysis technique. Inferential research using the t-test yielded a value of tcount = 2.293 in sig. = 0.027 = 0.05, indicating that H0 is rejected and H1 is accepted. This inferentially means that there is a significant difference in the mathematics learning outcomes of students in Class VIII SMP Negeri 16 Poleang Tengah who are taught the Script-type cooperative learning model versus the conventional learning model. Based on the findings of these research, it can be stated that using the script type cooperative learning model to teach students mathematics is more effective than using traditional learning models for class VIII students at SMP Negeri 16 Poleang Tengah.

Keywords: Script type cooperative learning model, Mathematics learning outcomes

A. Introduction

Mathematics is a broad science that underpins the advancement of modern technology, plays a key part in a variety of fields, and enhances the strength of human mind. Mathematics courses should be taught to all students beginning in primary school in order to develop students' ability to think rationally, analytically, systematically, critically, and artistically, as well as their ability to collaborate. These skills are required for students to be able to collect, manage, and use knowledge in order to live in ever-changing, uncertain, and competitive environments.

According to Wardhati & Rumiati (2011: 1), learning in Indonesia has not been effective enough in developing students' capacity to identify, grasp, and apply mathematical fundamentals. However, on the ground, learning attainment from the consequences of increasing pupils' thinking skills is still low, both worldwide and nationally. According to Rosnawati (2013), the average percentage of students who replied correctly on the TIMMS (Trends in International Mathematics and Science Study) 2011 reasoning dimension was just 30% globally, with only 17% of Indonesian students answering correctly. When compared to the global average percentage of students, Indonesian students' learning achievement is below average.

One of the biggest problems with learning outcomes is that students are less interested and enthusiastic to participate in learning mathematics because they think mathematics is difficult (Farman & Chairuddin, 2020). This is because students still regard mathematics as a scourge, which causes students to be afraid or phobic about these subjects. This low interest and fear causes most students to have difficulty solving math problems. This, of course, is implemented in the low mathematics learning outcomes of students (Farman & Chairuddin, 2020).

The dread that students experience is fueled not just by the students' own fears, but also by the teacher's inability to create situations that pique students' interest in mathematics. Teachers are one of the most important influencers in education because they work directly with pupils to impact, encourage, and develop their capacities to become knowledgeable, skilled, and moral human beings. Teachers must have the ability to be professional educators, which means they must master the material being taught and know how to teach it. Good teaching is teaching that can adapt to learning styles, learning models and use of media (Farman et al., 2021). Thus, it is necessary to choose the right approach and learning model in carrying out learning.

The learning was carried out utilizing the lecture approach, according to the results of the researcher's interview with the VIII grade teacher at SMP Negeri 16 Poleang Tengah. The lecture approach is a low-cost and simple method to use. In this example, cheap means that, unlike other techniques, the lecture process does not necessitate the purchase of all necessary equipment. While simple, the lecture relies solely on the teacher's voice in this situation, necessitating minimal preparation. However, researchers have discovered that the lecture technique is effective in the learning process because only the teacher is responsible for providing the subject matter, and the pupils are confined to what the teacher knows.

Students become bored with the subject delivered as a result of the lecture method utilized in the learning process, resulting in poor student learning outcomes. Furthermore, in order to increase student learning results, the teacher switched from a lecture to a discussion style in which the teacher divided students into groups depending on seats. Some pupils were already enthusiastic and enthusiastic in discussing during this activity. However, the majority of the other pupils were still spotted presenting stories and just imitating their classmates' responses. In addition, there is less apparent interaction between students and between students and teachers in this activity. Students in this group learning method have not been motivated to participate in the learning process, particularly students with low talents, resulting in unsatisfactory learning outcomes. Students with high abilities still don't want to educate their low-ability friends, therefore good learning results are limited to individuals with high abilities. Furthermore, there is no rivalry when it comes to learning. Furthermore, teachers have assigned exercises for children to perform at school and at home. Student learning outcomes, on the other hand, remain poor. Children also behave passively in learning activities, receiving information from the teacher without asking any questions. This condition has a negative impact on student learning results, which remain low.

This is evidenced by the fact that many students still struggle to grasp concepts and solve math problems, particularly when it comes to the material of cubes and blocks and calculating the surface area and volume of cubes and blocks with the acquisition of the average value of

student learning outcomes in 2016 of 5.75. The student with the lowest score is 35, while the student with the best score is 89. Only 15 (50 percent) of the 30 students obtained a score above the school's minimum completeness requirement (KKM) or the class average, while the remaining 15 (50 percent) received a score below the school's minimum completeness standard (KKM) of 70. According to some researchers, the above symptoms are caused by the inability of teachers to apply appropriate learning models to attract students' attention and facilitate students to learn more actively (Farman et al., 2019).

Teachers could aim to improve the quality of learning by making numerous modifications, notably in the learning process carried out by teachers, which can improve student learning outcomes, based on the symptoms that arise and the importance of mastery of mathematics by students. One thing that can be done is to use a learning model that attempts to stimulate students, such that they want to ask their group friends questions about the content being studied first, are eager to undertake the exercises, and feel responsible for their assignments and groups (Rosita & Leonard, 2015).

Teachers can use a variety of strategies to help students improve their math learning results, including cooperative learning scripts. Cooperative script is a learning model in which students work in pairs and summarize the parts of the material being studied (Maksum, 2013; Rosita & Leonard, 2015). Many cooperative script learning models provide opportunities for students to compare answers and assess the accuracy of answers, so as to encourage students who are less intelligent to keep trying in learning (Rifa'i, 2015). Students work in pairs and take turns orally describing the elements of the subject being studied in the script-type cooperative learning technique. The results of the study show that the script cooperative learning model can improve mathematics learning outcomes (Rusydiana, 2021). The learning outcomes of mathematics taught using the script cooperative learning model are higher than the STAD type cooperative model (Astuti et al., 2018).

B. Methodology

1. Research Design and Research Respondents

The purpose of this study is to see how beneficial it is to use the Script-type cooperative learning model with eighth grade students at SMP Negeri 16 Poleang Tengah. This study used a Posttest-Only Control Design as its experimental design. This design consists of two groups, each of which is chosen at random (R). The first group received treatment (X), while the other did not. The experimental group received treatment, while the control group received no treatment. Then each group will measure their learning outcomes (O). The design is presented as follows

R	X	O_1
R	-	O_2

Cluster random sampling was used to select the sample for this study. Cluster random sampling, according to Sugiyono (2011), is a sample selected based on groups, areas, or groups of subjects that naturally collect together. This stage is designed to identify the classes that are statistically significant homogenous. Because the placement of students in each class is not sorted by rank and none of them is a superior class, this strategy was chosen based on the assumption that it is a homogeneous parallel class. In this study, the sample was divided into two groups, one for the experimental group and one for the control group.

2. Instruments

Using the Script Type cooperative learning approach, this instrument is used to collect data on student activities during the mathematics learning process. Data on student actions is collected during the teaching and learning process by an observer, in this case one of the Mathematics instructors from SMP Negeri 16 Poleang Tengah, who is functioning as an observer.

The reliability coefficient is used to determine the amount of reliability of a test in a test reliability study. If the results of measurements taken using the test on the same subject

repeatedly show the same results or are steady (stable) or steady, the test is considered to be dependable (consistent).

3. The Technique of Data Analysis

The characteristics of the scores in the research sample for each class were described using descriptive statistical analysis. The frequency distribution table, the mean score, the mode, the median, and the standard deviation were utilized to analyze the learning outcomes data. Observational data on student and teacher activities was collected and analyzed by percentage and student category during the learning process.

To test hypotheses, inferential statistics such as t-test statistics and SPSS 20 program aid are utilized. Prior to that, normality and homogeneity tests were carried out as a prerequisite for data processing.

The goal of normality testing is to evaluate if the data on kids' math learning outcomes in each treatment group is from a normally distributed population. The data must pass a normalcy test before the correct test equipment can be used to determine the next test equipment. The Kolmogorov Smirnov (KS) 1 sample test was used to examine this test.

The goal of homogeneity testing is to see if the data on math learning outcomes for each treatment comes from a population with the same variance. Fisher's exact test will be performed to determine variance homogeneity, and Levene's test will be used as a comparison. The goal of this test is to discover whether the variances of the experimental and control classes are the same or not.

C. Findings and Discussion

1. Findings

Students who are taught using a script-type cooperative learning model (experimental class) have an average score of 79.95, while students who are taught using conventional learning methods (control class) have an average value of 74.5. This reveals that the experimental class's average mathematics learning outcomes for the cube and block content are greater than the control class's average mathematics learning outcomes for the cube and block material. Completely, the learning outcomes of students who are taught with script-type cooperative learning models and conventional learning are presented in Table 1 below

Table 1. Descriptive student learning outcomes

Aspect	Class	
	Experimental	**Controll**
N	20	20
Minimum	68	60
Maximum	91	87
Mean	79.95	74.5
Median	80.5	76.5
Mode	82	78
Variance	47.945	65
Standard Deviation	6.92421	8.06226

The data normality test employing the Kolmogorof Smirnov test yielded this result. The results of the normalcy test on students' mathematics learning outcomes in the cube and block material in the experimental and control classes. The data were subjected to a normality test with the experimental class sig (2-tailed) value of 0.200 and the control class sig (2-tailed) value of 0.200 > = 0.05. Then H0 is accepted and H1 is refused, implying that the experimental and control class data are regularly distributed.

Using the F-test, the homogeneity test of data variance from both script-type cooperative learning models and conventional learning models obtained F_{count} = 0.760 at the significance level = 0.05, with n1 = 20 and n_2 = 20 obtained Ftable = 4.10. Because Fcount (0.760) Ftable (4.10) at the significance level = 0.05, H0 is accepted and H1 is rejected. With H0 accepted, it can be stated that the data variance of students' mathematics learning test outcomes in the experimental and control classes is homogeneous.

The statistical test utilized in this study uses the Independent Sample t-test formula. The results of the t-test analysis utilizing the independent Sample t-test yielded ttable = 1.686 with tcount = 0.05 and degrees of freedom (dk) = 38.

2. Discussions

According to the findings of the study, students who were taught using a script-type cooperative learning model with a total of 20 students had a minimum score of 68, a maximum score of 91, an average (mean) of 79.95, a median of 80,5, and a mode of 82, with a variance of 47.945, and a standard deviation of 6.92421. Students who were taught using traditional learning models with 20 students received a minimum of 60, a maximum of 87, an average (mean) of 74.50, a median of 76.50, and a mode of 78.00, with a variance of 65 and a standard deviation of 8.06226. This demonstrates that students who are taught using a script-type cooperative learning model get superior math learning results than students who are taught using traditional learning models on cube and block material.

In the experimental class, the average percentage of instructor activity in the learning process is 85.00 percent. While in the control class, the average proportion of instructor activity in the learning process is 82.14 percent. The average value of the percentage of teacher activity in the learning process indicates that the instructor's activities in the learning process are included in the active category in both the control and experimental classes. This demonstrates that the teacher is engaged in the learning process and has followed the procedures of both the script-type cooperative learning model and the traditional learning model, depending on the application.

Observations of student activities in the learning process by the observer in both the control and experimental classes over the course of four sessions revealed that all features examined were generally successfully implemented. Students are passionate about participating in class, actively interacting with one another, and eager to work on the teacher's practice questions. For the experimental class, the average percentage of student engagement in the learning process utilizing a script-type cooperative learning model is 79.67 percent. In the control class, the average percentage of student activity in the learning process utilizing traditional learning methods is 76.81 percent. The average percentage of student activity in the learning process reveals that student activities in the learning process are included in the active category in both the control and experimental classes.

The Independent Sample t-test with df = 38 and a significance threshold of = 0.05 yielded tcount = 2.293 and ttable = 1.686 as the results of hypothesis testing. Because tcount > ttable, hypothesis testing with the Independent Sample t-test reveals that H0 is rejected, implying that there is a significant difference between the script-type cooperative learning model and the conventional learning model, with the average value of students' mathematics learning outcomes taught using a script-type cooperative learning model being better than the average value of students' mathematics learning outcomes taught using a conventional learning model. This difference is due to the fact that in the experimental class, the script type cooperative learning model is more beneficial for students because it fosters student learning independence while remaining under the guidance and direction of the teacher in doing or completing the tasks assigned, while still allowing students to express themselves in their learning. Furthermore, in the Script type cooperative learning model, enrichment is given to students who are quick (intelligent) and remedial is given to students who are slow (less intelligent); student learning results are assessed; and the next student's program is determined (Ihsan, 1995: 198).

As a result of the reported learning efficacy, it can be concluded that both script-type cooperative learning models and traditional learning models are effective to be applied to teaching materials for Geometry for class VIII students at SMP Negeri 16 Poleang Tengah. However, when the average value of student learning outcomes (post-test) is compared, it demonstrates that students who are taught using the script type cooperative learning model have better learning outcomes than students who are taught using traditional learning models on cube material. and beams. This means that using a script-type cooperative learning paradigm to teach kids mathematics is more effective than using traditional learning models.

In other words, adopting a script-type cooperative learning paradigm to apply mathematics learning has been shown to increase students' mathematics learning outcomes, particularly on cubes and blocks. As a result, in order to increase mathematics learning results optimum, the use of a script-type cooperative learning model must be implemented in mathematics learning. As a

result, it can be determined that learning mathematics using a script-type cooperative learning paradigm is beneficial in SMP Negeri 16 Poleang Tengah's class VIII. This is in line with the research of Harefa et al. (2020) and Rosiah (2019) that mathematics learning outcomes can be improved through a script-type cooperative learning model.

D. Conclusion

The average mathematics learning outcomes of class VIIIA students taught using a script-type cooperative learning model with 20 students show a minimum score of 68, a maximum score of 91, an average (mean) 79.95, a median 80.5, and a mode 82.00, with a variance of 47.945, and a standard deviation of 6.92421.

With a variance of 65 and a standard deviation of 8.06226, the average mathematics learning outcomes of class VIIIB students taught using traditional learning models show a minimum score of 60.00, a maximum score of 87.00, an average (mean) 74.50, a median 76.50, and a mode 78.00, with a variance of 65 and a standard deviation of 8.06226.

The Independent Sample t-test with df = 38 and a significance threshold of = 0.05 yielded tcount = 2.293 and ttable = 1.686 as the results of hypothesis testing. Because tcount > ttable, hypothesis testing with the Independent Sample t-test reveals that H0 is rejected, implying that there is a significant difference between the script-type cooperative learning model and the conventional learning model, with the average value of students' mathematics learning outcomes taught using a script-type cooperative learning model being better than the average value of students' mathematics learning outcomes taught using a conventional learning model.

E. References

Astuti, R., Nurmitasari, N., & Lestari, S. D. (2018). Eksperimentasi Model Pembelajaran Cooperative Script Pada Pembelajaran Matematika. *Eksponen*, *7*(2), 61–71. https://doi.org/10.47637/eksponen.v7i2.150

Farman, Chairuddin, & Hali, F. (2019). Penerapan Model Pembelajaran Kooperatif Student Teams Achievement Division (Stad) Dalam Upaya Meningkatkan Hasil Belajar Matematika Materi Himpunan Siswa Kelas VII1 SMP Negeri 15 Kendari. *Jurnal Karya Pendidikan Matematika*, *6*(2), 10.

Farman, F., Arbain, A., & Hali, F. (2021). Learning Style Preferences Based on Class and Gender. *AL-ISHLAH: Jurnal Pendidikan*, *13*(1), 164–172. https://doi.org/10.35445/alishlah.v13i1.368

Farman, F., & Chairuddin, C. (2020). Pembelajaran Flipped Classroom Berbantuan Edmodo Untuk Meningkatkan Minat Dan Hasil Belajar Siswa Pada Materi Pythagoras. *Jurnal Karya Pendidikan Matematika*, *7*(2), 92–100. https://doi.org/10.26714/jkpm.7.2.2020.92-100

Farman, F., & Chairuddin, C. (2020). Pengembangan Media E-Learning Berbasis Edmodo Pada Materi Teorema Pythagoras. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *9*(4), 872. https://doi.org/10.24127/ajpm.v9i4.3114

Harefa, D., Gee, E., Ndruru, M., Sarumaha, M., Ndraha, L. D. M., Ndruru, K., & Telaumbanua, T. (2020). Penerapan Model Pembelajaran Cooperative Script untuk Meningkatkan Hasil Belajar Matematika. *JKPM (Jurnal Kajian Pendidikan Matematika)*, *6*(1), 13. https://doi.org/10.30998/jkpm.v6i1.6602

Ihsan, Fuad. (1995). *Dasar-Dasar Kependidikan*, Jakarta: Rineka Cipta.

Maksum, A. (2013). Model Cooperative Script Berpendekatan Science, Environment, Technology, And Society (SETS) Terhadap Hasil Belajar. *Jurnal Inovasi Pendidikan Kimia*, *7*(1), 11.

Rifa'i, R. (2015). Penggunaan Model Cooperative Script Terhadap Kemampuan Pemahaman Dan Komunikasi Matematis Siswa. *MENDIDIK: Jurnal Kajian Pendidikan dan Pengajaran*, *1*(1), 9.

Rosiah, S. (2019). Penerapan Model Cooperatif Script sebagai Upaya Meningkatkan Hasil Belajar Matematika Siswa SD 4 Karangmalang. *ANARGYA: Jurnal Ilmiah Pendidikan Matematika*, *2*(2), 86–91. https://doi.org/10.24176/anargya.v2i2.3949

Rosita, I., & Leonard, L. (2015). Meningkatkan Kerja Sama Siswa Melalui Pembelajaran Kooperatif Tipe Think Pair Share. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, *3*(1). https://doi.org/10.30998/formatif.v3i1.108

Rosnawati, R. (2013). Kemampuan Penalaran Matematika Siswa Smp Indonesia Pada TIMSS 2011. *Prosiding Seminar Nasional Penelitian, Pendidikan dan Penerapan MIPA*, 6.

Rusydiana, D. (2021). Penerapan Model Cooperative Script Untuk Meningkatkan Hasil Belajar Matematika. *Indonesian Journal of Educational Development*, *1*(4), 683–691

Sugiyono. (2011). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R dan D*. Bandung: Alfabeta

Wardhani, S. & Rumiati. 2011. Instrumen Penilaian Hasil Belajar Matematika SMP: Belajar dari PISA dan TIMSS. Yogyakarta: PPPPTK.