Implementation of Mathematics Learning with Cooperative Learning Model in Elementary School

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Abstract. There search purpose is to acknowledge the development of the students learning result by applying cooperative learning method. The method used in this thesis is using Systematic Literature Review method. The data sources used in this article are using google scholar in the last 5 years which used mathematic guidance for cooperative learning model. The data in the analysis using data reduction, data serving, and conclusion. The scoring technique to check on the legitimate data is by triangulating the sources. Based on the research result done by the researcher known that the application of cooperative learning mode able to increase the connection ability in mathematics, which are; identify the correlation between concept of representation and mathematical procedures, to identify the correlation between one procedure to another one. In the equal representation, and to explain the application of the mathematic topic in daily life. Implication by using cooperative model in mathematic learning because students' understanding while using this model of learning is very good and easy to understand by the students. This thesis is giving the understandable to teachers in using mathematic application media in multiplication material very affective in students' understanding.

Keywords: Mathematic · Cooperative learning

1 Introduction

1.1 Background

The process of learning in stages occurs in a complex way in each person throughout life. The process occurs because of the individual's relationship with the environment, so learning can happen anytime and anywhere. The mark that an individual always has in the learning process is a change in attitude due to a shift in understanding, mastery, and action. In the 21st century, the need for competence increases with the Moroccan thinking that in the 21st century there are at least four categories that must be understood, namely; excellent capacity for understanding, reflection, cooperation and communication. It then develops to its fullest capacity through multilateral competence.

M. H. Hikmat et al. (Eds.): ICOLAE 2022, ASSEHR 757, pp. 614–622, 2023.
https://doi.org/10.2991/978-2-38476-086-2_52

Thus, skills require reactive, systematic, logical, creative, and effective vision. All of this can be developed by learning math, because the concept is clear and clear between shapes and associations, so students think more logically. In the learning process, the role of the teacher is very important [1]. In schools, the teacher is considered as a guide for students, supporting students in learning and a motivating factor for students. Teachers need to understand and perceive. Conditions of students to be able to carry out the learning process in the process of learning mathematics [2]. Mathematics has been a terrible subject for students since it was discovered a long time ago until today, and is considered the most difficult subject for students (Badriyah et al., 2022) [3].

The opportunity for skill development comes when he can complete any math problem while learning math. Teachers do not use students to practice building problem-solving materials when studying, so the average rate of students practicing solving problems is still low. Sometimes appropriate behaviors are implemented when math class is on just because their students are still average [3]. This can cause negative thoughts. A simple math problem that still exists to this day is understanding multiplication. Teachers guide students to memorize and stand in front of the class. When students cannot memorize, they will be punished for standing in the corner of the classroom. Until the end of the post [4]. Primary school is the lowest level of formal education in Indonesia. Goals according to Mirasa and his friends mean the stages of development of competence in each student, in which they learn actively because of their own self-motivation and also allowable circumstances. They get an optimal development staff. The teacher is an indicator of a student's success in the learning process. The teacher must clearly understand the learning objectives, the satisfaction of the defined educational goals, and select a specific learning system according to the goals to be achieved, understand all the sources of the learning material, identify learning accessories, test their options and applications, and proficiency with pointing devices. The succession of a classroom learning plan depends on the teacher's ability to use strategies, techniques, but also learning methods (Fridaram et al., 2021) [5]. The solution to the problem is that the teacher must create an interesting situation when learning mathematics.

Situations can be established if teachers use cooperative learning methods. Students tend to be closer in math and try to prove themselves in what will increase their cognitive skills. Thus, the lesson is more meaningful and achieves the learning goal. According to Slavin, "Cooperative learning methods share the idea that students work together to learn and are responsible for their teammates' learning," meaning that students learn together cooperatively.

1.2 Problem of Study

Learning math is always associated with abstract learning that is difficult to understand. Thus, in the process of learning mathematics, the role of the teacher is very important. In schools, teachers are considered as guides for students, supporting students' learning, and motivating factors for students, so teachers need to understand and be aware of the status of students [6]. Can carry out the learning process in mathematical processes. Mathematics has been a terrible subject for students since it was discovered a long time ago until today, and is considered the most difficult subject for students. (Badriyah et al., 2022) [3]. The presence of an inappropriate action during math learning often

occurs when moderate comprehension occurs. He may also develop negative thinking. The succession of a classroom learning plan depends on the teacher's ability to use strategies, techniques, but also learning methods (Fridaram et al., 2021) [5].

2 Method

2.1 Type and Design

This literature review was written using qualitative research methods. The reviewed literature included eight relevant journals as data sources. Reasons and specifications for selecting journals for research include: variability, relevance to this written study, source journal credits, journals published in the last 5 years (up-to-date) and focused solely on education. Elementary School (SD). It also uses Google Scholar's document approach to provide data. As a population, we selected documents discussing mathematical teaching using a collaborative learning model for elementary school students. Sampling uses target sampling as a sample source with specific criteria. The keywords chosen for the Google Scholar search are "implementing mathematical guidance" and "collaborative learning models". The data validation used is reliable and a reliability test. The extracted data is processed using Miles and Hubermen analytical data technology [7]. H. Data Reduction, Data Presentation, and Data Inference/Validation.

2.2 Data and Data Sources

The data of this research is an article that discuss about mathematic learning guidance with the data for this study is a paper that discusses the teaching of mathematics using a collaborative learning model for elementary school students. The data source for this study was only Google Scholar articles from the last five years (2018–2022).

2.3 Data Collection Technique

Data collection performed in this study using the following data primers and secondary data.

2.3.1 Primary Data

Primary Data is information that gathered through observation, survey that required. This research primary data was taken from https://scholar.google.com/. The reason using Google scholar because:

a. Google Scholar provides complete facilities.
b. The data is easy to discover because it has an adjustable years setting based on the researcher's necessity.

2.3.2 Secondary Data

Secondary data required to complete the primary data. Multi-stage data collection, such as: a. Observation, direct resource observation, which is https://scholar.google.com/ documentation, data collection and inference.

2.4 Data Validity

This study took advantage of one of the reliability of outcome studies using triangulation [8]. Triangulation within reliability testing includes resource triangulation, triangulation techniques, and time triangulation. In this study, one type of triangulation was used, resource triangulation [9]. Triangulation of resources to collect data from articles via Google Scholar sources.

2.5 Data Analysis

Qualitative data analysis is the systematic process of presenting and processing data from interviews, field notes, and comprehensible materials, and communicating the results to others. Data analysis processed in this study according to (Miles and Huberman, 1992: 20) included data reduction, data presentation, and conclusion of results.

3 Result and Discussion

3.1 Result

Based on Table 1, there are seven complete reviews of data sources.

Mukarromah (2019) Research on "Cooperative Learning Type Investigation Group to Increase Outcome in Mathematical Learning Process for Class V of Primary School of UPTD SDN Tramok 1 Kecamatan Kokop Kabupaten Bangkaran". The result is a learning process with Investigation group-type collaborative learning applications that can improve outcomes. UPTD SDN Tramok 1 students achieved an average score of 61.25 among 20 students. Or only 8 students have completed and the rest have not. Expressed as a percentage, 40% of students completed and 60% have not completed. A student's learning outcomes known to improve in Cycle 2, with 80.05 being 100% achieved or 20 students 'achieved Minimum Integrity Criteria (KKM). This meant that there was significant development in Cycle 2 of the learning progression, so the cycle was stopped at this outcome [6].

As Widodo & Fauzi (2022) states: 'the mathematics learning comprehension of grade V students using a jigsaw collaborative learning model'. Results 1. Scenarios and implementations in SDN 259 Griba Kota Bandung's 5th grade mathematics learning comprehension using puzzle models made students more active, interactive, independent and happier during the learning process. There was positive interaction between students and teachers during the learning process, making learning more meaningful and effective and improving student achievement of learning outcomes. 2. Feedback from teachers and students in Class V of Elementary School 259 Griba Kota Bandung showed that in their mathematical understanding of learning using puzzle models, teachers and students and learning materials were fully communicated by teachers. No, mostly positive for students. 3. For Grade V students of SDN 259 Griba Kota Bandung Elementary School, all the problems students face during the mathematics learning comprehension assessment using her STAD model below. Students are difficult to control because they are unaware that they have perfected the technique of the storyboard game. So there are still students chatting, unable to concentrate on the given material, and the discussion still dominates the best students. Some students using Student Worksheets (LKS) don't really care about revisions because they don't know when it's time to make revisions [10].

Table 1. Quality Assesment Result

No.	Writer	Year	Finding
1.	Mukarromah	2019	The application of the cooperative learning model type group investigation for learning implementation Improve the learning outcomes of Students in UPTD SDN Tramok 1 Kecamatan Kokop Kabupaten Bangkalan class V. There has been a significant improvement in the completion of 100% of students' learning.
2.	Widodo, & Fauzi	2022	The implementation of model Jigsaw in class V students of SDN 259 Griba Kota Bandung has prompted a change of modification to students' improvement in mathematic scores, making it easier for students to comprehend the learning materials and enabling to boost/encourage the students to be more active and creative in having finished the learning's assignment.
3.	Apriyanti, Rizal, & Marta	2019	TPS cooperative learning model enables students' mathematic learning results to be improved. In class IV students of SD Negeri 6 Bukit Batu, and improve students' mathematical communication skills and confidence
4.	Saptuti, & Budi	2019	Type group investigation helps to improve math learning outcomes in class V students, particularly when learning about fractions.
5.	Widiani	2021	The implementation of a cooperative learning model of the type Pair Check to improve math learning. SD Negeri 1 Suwug semester I 2019/2020 students in class V. The application of the cooperative learning model type Pair Check has implications for this research. Allow students to practice independence, problem solving abilities, social feelings, cooperation, and the ability to make decisions.
6.	Ekaputri	2019	Better planning, using the cooperative model's path and theory through group counseling supported by games Correctly and to the greatest extent possible, so that learning and improvement could indeed occur gradually.

(*continued*)

Table 1. (*continued*)

No.	Writer	Year	Finding
7.	Zahara, & Harahap	2022	The application of cooperative learning Type Talking Stick to improve students' mathematic learning results in class V SD. The average score and learning completion rate are 22 and 66.6%, respectively.

As Apriyanti et al., (2019) concluded:"Application of Think Pair Share (TPS)-type collaborative learning model to improve activity and performance in mathematics learning", was successful in improving the student's learning activities, improving from the' active enough' category in Cycle I to' active' in Cycle II. Upon Request Cooperative Learning Model TPS for Science Journal for Elementary School Students vol. 4, 2019, Mathematics Learning IV Class A Semester I SDK Cycle I to Cycle II Student Learning Achievement, Learning Completion, and Assess acceptability as 21, 63%, 38, 46%, and 21, 63% simultaneously [3].

As Saptuti & Budi (2019) states: "Use Of Cooperative Learning Model Type Group Investigation To Improve Mathematical Learning About Fraction For Class 5 Of Primary School Student" Cooperative Learning model type Activities Results group exams using the can assess the results of grade V students' mathematics learning. In particular, you will learn about fractions through grouping, identifying study topics, research topic acts, final research preparation, research presentations, and assessments [6].

As Widiani (2021) states: "the application of cooperative learning model type Pair check to improve the mathematic learning result" to get result within period of 4 months through cooperative learning model type Pair Check on cycle I, learning result had an average 65% absorption with learning completion of 70%. The learning result has not achieved the indicator of success yet which established in this research. Learning results considered to be low can be caused by: (1) less active students in question and answer session at the beginning of the learning process, (2) only few students work as a group to answer the student work sheets that are given (3) when working the Student Work Sheets with the group, still lots of group indiscipline in time. It is shown there is an overtime in doing the student work sheets, so they short in presentation, (4) students lack confidence in matching the correct answers with their partners to the answers being used is derived from their friends, (5) students incapable of checking their friends' answers, so the mistaken answers still neglected by the students who become the coach, (6) there are still inactive students in a work groups, (7) the students tend to counting on the better student to finish the students' work sheets, (8) discussion dominated by active students. In cycle II, students' learning results are an average 74, the absorption level is 74% with learning completion is 91% [11].

This learning result has overlapped the indicator of success that has been set in this research. There are several things that cause improvement in learning in cycle II. There are: (1) active students in question and answer session at the beginning of learning session, (2) in group students and answering students' work sheets together (3) when

doing students work sheet has already on time. It is clear that students are willing to be partners and coaches. (4) The answers used are from friends, as students are confident in cross-checking their answers with their partners. (5) Students allow incorrect answers. (6) Each reward given can improve student motivation. In this way, the introduction of the pair-check collaborative learning model enables independent training, improves the ability to overcome given problems, and improves students' sociability, teammates, and judgment.

As Ekaputri (2019) states, "Collaborative Learning Model with Group Leadership in Thematic Learning for Improving Learning Outcomes of Class II Students in SD Negri 28 Dangin Puri Denpasar Academic Year 2016/2017". Results show that the use of collaborative learning in group leadership results in significant improvements in learning mathematics using Data 1. In Cycle II, she was the only three students who fell below KKM 2. From an initial average of 60.00, it increased to 69.2 in Cycle I and 75.57 in Cycle II. 3. From the student's first graduation, there were only 9 students, which increases to 25 students in Cycle I and 30 students in Cycle II [12].

As Zahara and Harahap (2022) state: As a result, his pre-test average score (Test Awal) was 58.67, the student's completed learning level was up to 20%, and up to 6 students after the action using interactive collaborative learning models Has completed. Stick 1 deployed. We found that the student's learning outcomes for Cycle Test I were up to 20 students (66.70%) and her class average score was 72.50. 2. Student learning outcomes for Cycle Test II were determined for 26 students (86.67%) with a class average of 80.67. 3. In Cycle I, the teacher's observed activity score is 70.50 and the student's observed activity score is 75.50, which is a good category. The teacher's observed activity score in cycle II is 85.50 and the student's observed activity score is 87.50 which are good [9].

3.2 The Implementation of Mathematic Learning with Cooperative Model Elementary School Level

Based on the analysis of the documents found, there are several types of collaborative learning models that can be applied to students. This is because students' lack of interest in learning has been investigated by researchers from several sources: 1. Type Group Survey 2. Type Puzzle 3. Think Pairs and Divide 4. Pair check 5. Talking stick. Comparisons or differences between all types of cooperative learning have not shown significant differences. This means that all types used have something in common. In other words, "there is a greater learning improvement for the student than learning without the collaborative learning model." Teachers must identify which types are or are suitable for the students they are teaching in order to achieve maximum results.

4 Conclusion

Based on research conducted by researchers, applying researched collaborative learning models such as Type Group Investigation, Type Jigsaw, Think Pair and Share, Pair Check, and even Talking Stick significantly improves student learning ability It is known that For teachers who are more aware of the difficulties faced by their students.

Acknowledgments. I would like to thank Universitas Muhammadiyah Surakarta for providing publication funds and assisting in the publication process. I also thank the PGSD UMS for supporting and assisting with this study.

Author Contributions. The first author is Dwi Indriana Widiawati in charge of collecting data and compiling drafts. The second author is Muhamad Taufik Hidayat in charge of reviewing.

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