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## PRACTICE COOPERATIVE LEARNING TYPE OF GROUP INVESTIGATION AT LESSONS MATHEMATIC IN CLASS VIII SMPN 39 PALEMBANG

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### Abstract

This study is a descriptive study to illustrate the practice of cooperative learning type group investigation in SMP Negeri 39 Palembang class VIII. This practice is seen from the learning activities of students, teachers teaching, and student learning outcomes. Having carried out the implementation of cooperative learning groups investigation the learning of mathematics at Junior High School 39 in Palembang, found that the implementation of cooperative learning groups investigation is very good. Judging from the percentage of students' learning activities are 70 % and teaching activities of teachers is 75 % meaning that students and teachers have been successful in carrying out investigative implementation of cooperative learning groups. For students there are learning outcomes of students who completed 82.5 % of the 40 students who work on the problems existing in the test description with an average value of 78 students.

**Key words** :Cooperative learning type of group investigation, learning outcomes

### INTRODUCTION

Mathematics is a subject that is learned from primary education to higher education, holds a very important role in encouraging technological progress, because mathematics is a means to develop a logical way of thinking, careful, and creative (Soedjadi, 2000:43). Mathematics has special traits or characteristics that can explain the general understanding of mathematics. According Soedjadi (2000:13), is a mathematical characteristics: object has an abstract study, based on an agreement, deductive thinking patterns, have an empty symbol of meaning, pay attention to the universe of discourse, is consistent in his system.

The purpose of learning mathematics in the Content Standards issued by the National Education Standards Agency (BSNP) shows that not only a mastery of math facts mastery and understanding of the concepts and procedures of mathematics, but also a process of students' mathematical abilities. Although the mathematics learning objectives very clearly emphasized the importance of students to master the skills of math, but the reality on the ground is not as expected. In fact, mathematics is a subject that always exist in both the primary and secondary levels.

As in SMP Negeri 39 Palembang, mathematics is a compulsory subject. Within five hours of lessons a week only for mathematics courses. Especially in the eighth grade, in one week the students will learn math as much as five hours of lessons. In the course of studying mathematics, Junior High School 39 in Palembang students are given the tools to learn, for example worksheets that are bought from the publisher.

Mathematics teachers who teach in Junior High School eighth grade 39 Palembang precisely that Yuliati mother, S.Pd. explained that they have started using a learning approach. However, the material system of linear equations using two variables teachers direct learning. In the early learning



teacher at the blackboard explaining SPLDV material , give examples and provide practice questions so that makes a lot of students who did not complete in the lesson material . Then the researchers also made observations in SMP 39 Palembang by providing 2 pieces of matter with the material in class VIII.5 SPLDV . The result is students are only able to achieve an average value of 60 to 47 % of students who completed 40 students . This occurs because the teachers do hands-on learning , students are not given enough questions SPLDV .

From the above discussion , the researcher obtained problem is less precisely applied learning approach that resulted in the school students are less familiar with the questions SPLDV . Given these problems , the basis for research in finding a solution . For example, by providing a wide range of issues such SPLDV to students . Besides the learning process there is a suitable approach to discuss issues SPLDV . The approach is a cooperative learning group investigation . Because according to the research that has been done Mahsup ( 2010 ) , investigative strategies can improve students' understanding of the material SPLDV .

In addition to research conducted Mahsup , research conducted Hardiyana ( 2012) activities on the application of cooperative learning groups is an active investigation . In addition, according to an article Anggraini ( 2010) by applying a model of investigative groups in the learning process , the students' mathematical problem solving ability has increased . Furthermore, according to research conducted Sugiarto ( 2010) use cooperative learning model investigation group with IGT can improve the communication skills of students .

Investigative approach encourages students to learn more actively and more meaningful . This means that students are required always to think about a problem and they find their own way of settlement because the teacher only gives advice when students are confused with his problems . In the investigation of learning issues or problems will usually be given by the teacher . Moreover, if the problem is already in the investigative group representatives will be present and carried the discussion . Here students are required to work together , confident , respect the opinions of others , learning to communicate , and learn to solve problems that have given the teacher .

Therefore , investigation of cooperative learning groups will be implemented in SMP Negeri 39 Palembang and to teach is math teacher is the mother Yuliati , S.Pd. In addition, in the process of investigation of cooperative learning groups of researchers will use questions material systems of linear equations with two variables

Based on the above , the writer is interested in conducting research entitled " Application of Cooperative Learning Model Investigation Type Group In Mathematics Subjects in Class VIII SMP Negeri 39 Palembang "

## **RESEARCH METHODOLOGY**

### **Subjects and Study Sites**

This research was conducted in the first semester of the academic year 203-2014 . Subjects in this study were students of SMP Negeri 39 VIII.5 Class Palembang . Selected VIII.5 class because the class of heterogeneous so that it can operate effectively and the teachers are expected to implement cooperative learning groups investigation .

### **Research Methods and Procedures**

This research is a descriptive study that aims to describe the application of cooperative learning groups to see the results of an investigation of student learning .

### **Data Collection Techniques**

According to the type of data to be obtained in this study , the instrument used in this study is the observation sheets , and tests .

#### 1 . Observations

Observation method is used to see students learning and teaching activities of teachers in implementing cooperative learning groups investigate the material system of linear equations of two variables . Observations carried out by direct observation at the time of learning .

#### 2 . Tests

The test is used to obtain data on student learning outcomes subject of Two Variables Systems of Linear Equations ( SPLDV )

### **Data Analysis Techniques**

#### 1 . Data Observations

Observational data obtained from the results of the study , were also analyzed to see the percentage of teaching and learning activities of students and teachers

#### 2 . Data test results

The data obtained from the test answer sheets of students in completing the test questions .

## **RESULTS AND DISCUSSION**

Prior to the implementation of the study , researchers prepared lesson plans , Observation Sheet , Student Activity Sheets , and validated test questions by teacher assistant . The study was conducted as many as three meetings . The first and second meetings , conducted using cooperative learning groups investigation . While the third meeting , researchers conduct tests to see student learning outcomes .

The first meeting was held on 25 November 2013 , followed by 40 students with an allocation of 2 x 40 minutes . At the first meeting , the teacher began applying cooperative learning groups investigate the following stages :

#### 1 . Stage Identify the topic and form groups

At this stage the teacher LAS distributed fatherly 1 and ask students choose a problem that they think is easy . Then the teacher asks the students to form groups based on their chosen issue .

#### 2 . Planned tasks to be investigated

At this stage keterlaksanaanya less visible because teachers are less stressed to students fatherly conduct the planning stages . It should at this stage the students to plan what they will do and plan for the division of tasks .

#### 3 . Conducting Investigation

At this stage , students begin to gather information to solve selected problems . Students analyze the data . Teachers observe students work performed and guide students who are having difficulty

#### 4 . Preparing the Final Report

At this stage , students will prepare what they presented in front of the class . However, only a few groups that perform this step . This is because the only group who want advanced course that prepares the completion of their investigation results .

#### 5 . Present Final Report



After the students have passed the stage of organizing , the teacher asks the students to hold a class discussion . The teacher offered to students who will be first developed to present the results of their investigation . All students are silent because no one dared . Finally, the teacher chose two groups to present issues 1 . Discussion classes take place as expected .

#### 6 . Evaluation

After students take the stage presentation , teachers should encourage students to conclude the day's lessons . But what happens the teacher asks the students to sit back to its original position . After that, teachers and researchers provide individual training to see the mastery of the material in the lesson.

The implementation of cooperative learning groups in the investigation of the second meeting was held on 27 November 2013 . Activities undertaken are the same that only distinguish the material. The third meeting was conducted on November 30 . At this meeting the researcher gives the test , amounting to about three questions .

### **Discussion On Learning Implementation**

The purpose of the application of cooperative learning groups in the material SPLDV investigation is to look at the implementation of the application of cooperative learning through observation and investigation of student learning outcomes through the test . The implementation of cooperative learning groups investigation meetings conducted twice and the other time for the test . The application of this learning mathematics practiced by teachers in the classroom VIII.5 the number of 40 students .

At the first meeting of the learning process , students discussed the material is not too complicated . The material is made of mathematical models of matter relating to SPLDV . But students are not familiar investigation that resulted in the group stages appeared less committed student investigations . the class discussion there that gives suggestions and constructive example by comparing the mathematical models that they can . So that when discussed , of this material could have many forms of mathematical models . But there are students who are shy in asking questions and responses , so that the observer helps the students to dare to express their opinions . Moreover atmosphere class discussion went well , although less visible in answering questions kebersamaanya and time of presentation , there is still a member of the presenters are nervous speaking in front of each other so they told Kels told to answer questions from participants.

At the second meeting of the material covered is to solve problems related to SPLDV . This material is more difficult than the first meeting . But students already have the capital to resolve the matter SPLDV because they have understood how to create mathematical models . Students also look more active in completing the investigation of the matter which they have chosen because this material is more challenging and began using arithmetic operations . So requires foresight students in finding penyelesaiaanya . At the time the investigation took place , students do not hesitate to ask the teacher and the observer . They are racing to finish their investigation .

At the presentation stage , almost all hand-picked group so welcome to the presentation in front of the classroom so that teachers become confused as to who is going to advance the presentation . At the time of presentation , the group began to look kebersamaanya renderer . Students as participants also had dared to ask questions and give feedback . Such as presentation issues 1 , one group renderers in determining pemisalan of questions so that the answers they get less precise . The other group responded and gave advice to the group renderer . In addition to providing advice ,

participants also advanced to the front of the class to write down the correct answer and group renderers justify their answers and realized their mistake .

Evaluation of a given problem , the results are also experiencing an increase seen in the first meeting of students who completed 62.5 % and at the second meeting as much as 75 % .

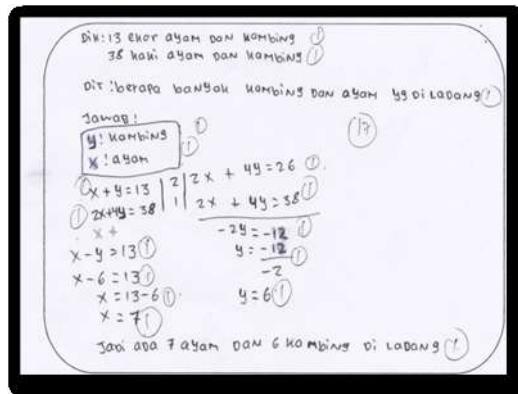
Discussion on the Implementation of the Final Test

Data obtained from the final test in the table below :

**Table Value End Students**

Category	Value	Frequency	Percent
Completed	$\geq 70$	33	82,5 %
Not Completed	$< 70$	7	17,5 %

From the table above , note that as many as 33 students have completed work on a given test item and 7 other students do not complete . So based on these results as much as 82.5 % of the students completed 40 students . Here's a picture of students in completing the answer test questions number 1 :



Dik: 13 ekor ayam dan kambing  
 38 kaki ayam dan kambing  
 Dit: berapa banyak kambing dan ayam yg di ladang?

Jawab!

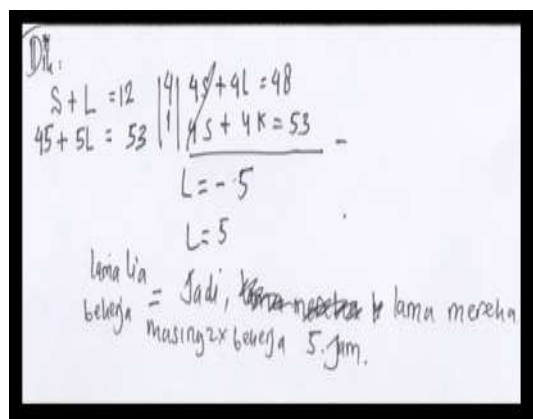
y: kambing  
x: ayam

$$\begin{array}{r|l} x + y = 13 & \textcircled{1} \\ 2x + 4y = 38 & \textcircled{2} \end{array} \quad \begin{array}{r} 2x + 4y = 26 \\ \underline{2x + 4y = 38} \\ -24 = -12 \\ y = -\frac{12}{-24} \\ y = \frac{1}{2} \end{array}$$

$x + y = 13$   
 $x - y = 13$   
 $x = 13 - 6$   
 $x = 7$

Jadi ada 7 ayam dan 6 kambing di ladang!

The above answer , is the answer to one of the students with a score of 17 . Scores is maximal at about 18 . Disadvantages student is to write down the proof . Selanjutnya students' answers on Question 2, which is less precise as follows :

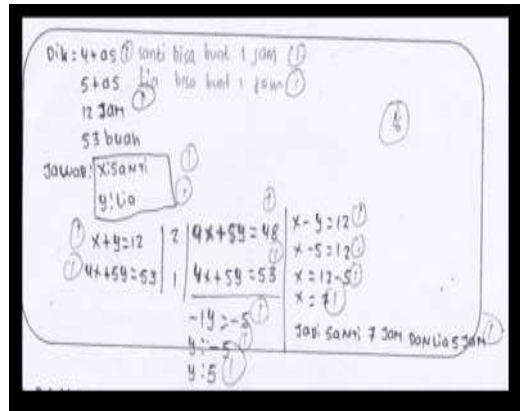


Dik:

$$\begin{array}{r|l} S + L = 12 & \textcircled{1} \\ 4S + 5L = 53 & \textcircled{2} \end{array} \quad \begin{array}{r} 4S + 4L = 48 \\ \underline{4S + 5L = 53} \\ -L = -5 \\ L = 5 \end{array}$$

Lima lima = Jadi, karena masing-masing belajar 5 jam.

Answer the above , students do not write information to the right , just write fatherly Lia longer working time . Of the above , the students received a score of 5 out of a maximum score of 20 . Answer is almost true for students who test item numbers as follows :



Dik:  $4+05$  (sani bisa buat 1 jam)  
 $5+05$  (Lia bisa buat 1 jam)  
 12 jam  
 53 buah

Jawab:  $x$ : Sani  
 $y$ : Lia

$$\begin{cases} x+y=12 & (1) \\ 4x+5y=53 & (2) \end{cases}$$

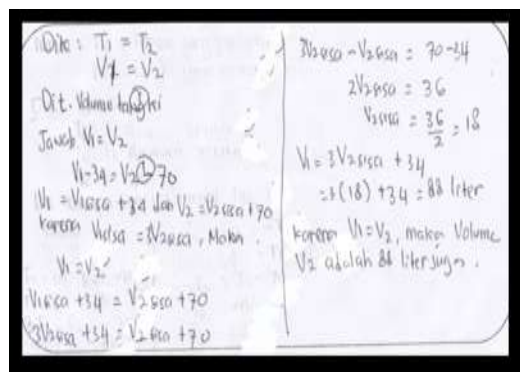
$$\begin{array}{r} 2 \times (1) \rightarrow 2x+2y=24 \\ 4x+5y=53 \\ \hline -1y=-5 \\ y=5 \end{array}$$

$$\begin{array}{r} x+y=12 \\ x-5=12 \\ \hline x=12-5 \\ x=7 \end{array}$$

Jawab: Sani 7 jam dan Lia 5 jam

Students' answers above only scored 16 out of a maximum score of 20 . 's Not clear due to the student in writing that the requested information .

For the test item number 3 , following the correct student answers :



Dik:  $V_1 = V_2$   
 $V_1 = V_2$   
 Dit. Volume air  
 Jawab:  $V_1 = V_2$   
 $V_1 = 34 = V_2 = 70$   
 $V_1 = V_1 + 34$  dan  $V_2 = V_2 + 70$   
 karena  $V_1 = V_2$ , maka  
 $V_1 = V_2$   
 $V_1 + 34 = V_2 + 70$   
 $34 + 34 = V_2 + 70$

$34 + 34 = 70 + 34$   
 $2 \times 34 = 36$   
 $V_2 = \frac{36}{2} = 18$   
 $V = 3 \times 34 + 34$   
 $= 3(18) + 34 = 88$  liter  
 karena  $V_1 = V_2$ , maka Volume  
 $V_2$  adalah 88 liter juga .

From the students' answers to the above , the students scored 18 out of a maximum score of 22 scores .

## CONCLUSION

Having carried out the implementation of cooperative learning groups investigate the learning of mathematics at Junior High School 39 in Palembang, found that the implementation of cooperative learning groups is a very good investigation . Judging from the percentage of students' learning activities are 70 % and teaching activities of teachers is 75 % meaning that students and teachers have been successful in carrying out investigative implementation of cooperative learning groups . For students there are learning outcomes of students who completed 82.5 % of the 40 students who work on the problems existing in the test description with an average value of 78 students .

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