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APPLICATION OF STAD MODEL COOPERATIVE LEARNING TO IMPROVE MATHEMATICS LEARNING ACTIVITIES OF GRADE VI STUDENTS OF SDN XI NO. 40 BLIMBING, MALANG REGENCY

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ABSTRACT

The implementation of education in schools makes various kinds of lessons to students that must be taken in realizing their ideals. The subjects received and taught to students must be developed and improved in accordance with changes in the school curriculum. Education in schools must have educational goals to be achieved, in achieving goals must lead and be guided by the implementation of teaching called the curriculum. The purpose of learning mathematics is expected that students are able to provide knowledge to learn and understand mathematical concepts and be able to apply scientific methods that provide process skills to solve problems in everyday life, considering that the role of mathematics is increasingly playing an important and large influence on industrial and technological developments. Based on research conducted by researchers for two weeks in the field from the 03rd to the 15th, researchers managed to collect some data that the number of samples studied was 26 students in a column and read the pressure in the table of the average value r product moments with a signification level of 5% we will find the number 0.388. This number shows the signification limit number, while the average calculated value of 0.8915 means that the relationship between the learning outcomes of cooperative students and non-cooperative groups through the STAD model cooperative learning is quite good. Because the calculated value obtained by r = 0.8915 means that jau is above the signification limit of 0.388. According to the results of the data analysis obtained, the relationship between the learning outcomes of cooperative students with non-cooperative groups with the cooperative learning strategy of the STAD model is very significant between the learning outcomes of cooperative students of group X with the learning outcomes of non-cooperative students of group Y. So that the application of cooperative learning has a sustainable relationship to achieve good performance as well. So that during the teaching

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and learning process of mathematics State Elementary School XI No. 40 Blimbing will produce better learning achievement.

KEYWORDS *Cooperative Learning, Learning Outcomes.*

INTRODUCTION

Education in Indonesia is now entering the reform era with radical reforms, which were raised by law number 22 of 1999, and law number 20 of 2003 concerning the national education system, namely delegation of authority, and the community is involved in the development of curricular programs and the development of schools at the level of dadar to tertiary education, paradigna just entering the era of reform on education is expected to be a solution in overcoming its lows the quality of education processes and outcomes in Indonesia which results in the low average quality of human resources in the context of regional and global competition (R osyada, 2004: 1). Law number 2 of 1989 concerning the special national education system relating to the preparation of secondary school education personnel for the Bachelor (S1) program. Which explains that education is an integral part of development or education is a basic effort to prepare students through guidance, teaching or training activities for future roles regulated by the Law of the Republic of Indonesia number 2 of 1989, Chapter I, article I (Hamalik, 2004: 2).

The view of education that explains that in achieving the realization of civil society as a new Indonesian nation and society with a life order that is in accordance with the mandate of the proclamation of the unitary state of the Republic of Indonesia through the educational process and has a term that is a step in the progress of national education towards the field of education, the implementation of an atonomous, broad but adaptive and flexible education implementation organization is open and oriented to: the needs and interests of the nation. As well as the empowerment of organizations and educational processes to overcome national crises (Mulyosa, 2004: 2). Mathematics is a discipline of science that has a distinctive nature when compared to other disciplines of science, therefore mathematics learning and teaching activities should also not be equated with other sciences thus the application of learning for students is very important to be advanced in order to determine student learning outcomes more competently.

As far as researchers know, activities in the field show that students still have difficulty understanding mathematics, especially the application of cooperative learning of STAD model students, this is evidenced in the results of Soedjadi's research (Winarni, 1998: 2) which said that currently there are weaknesses in mastering subject matter by students, especially elementary schools. Government Regulation of the Republic of Indonesia number 19 of 2005 concerning national standards of education

is the government's effort to improve the quality of education in Indonesia (Kartadinata, 2006: 3)

Assertion of terms

1. Teaching strategies in mathematics teaching outcomes according to (Hunker and Hudojo 1977: 87) he concluded the results of his study conducted in grade VI in the United States in 1977 that the strategy of writing a mathematical problem on the blackboard and then stating "who can solve the problem"? To judge learning outcomes or attitudes towards maths is unrealistic.
2. Mathematical thinking
   Mathematical thinking is a mental activity, which in the process always uses abstractions and generalizations
3. Primary school is the first place students formally learn the basic concepts of science.
4. Learning is a process of change that occurs as a result of individual experience and not due to a process of physical growth.
5. Learning outcomes are abilities obtained by a person after following the learning process, which has five basic abilities, namely; intellectual skills, cognitive strategies, verbal informations and attitude skills.

Cooperative Learning

Cooperative learning is a teaching and learning strategy that is structured to help develop cooperation and interaction between students (Jacob in Rahmawati, 2004: 13). Cooperative learning in its implementation, as a large number of student-centered learning activities, while the teacher only acts as a facilitator in guiding students in completing the task material. According to Cohen (In Rahmawati, 2004: 151) cooperative learners are described as follows: is a learning strategy that determines cooperation between students and cooperative learning in groups to achieve common goals. According to (Slavin and Robert, 1995), Cooperative learning will be defined as student working together in small enough groups that everone can participate a collective task that has been cleary assigned. Moreover, students are spected to cary out their that without direct and immediate supervission off the techer.

This definition has a broad meaning that includes collaborative learning, cooperative learning and group work, also shows sociological characteristics, namely the emphasis on aspects of collective tasks that must be done together in groups and the assignment of authority from teachers to students. The teacher only acts as a facilitator in guiding students in the learning process.

Cooperative learning according to Johnson (in Maidyah, 1998: 8) is a learning method that emphasizes cooperation between students in groups to achieve common goals. Students in the class are divided into groups of four to five people each. Each group must be heterogeneous, whether academic ability, gender, or taste. Group goals will still be achieved if all group members can achieve goals together. Not all learning in groups can be viewed as an implementation of cooperative learning. According to

As'ari (2003: 03) learning in groups can be seen as an implementation of cooperative learning if it meets the following characteristics: 1). The existing study group is a small group group, 2). One student collaborates with other students, 3). The group has group goals, and they are driven passionately to achieve them, 4). Some social skills, as often natural, must appear in learning activities, 5). Tutors should always happen in groups, 6). Group members are heterogeneous, and 7). Provide opportunities for mutual success.

Cooperative learning is one of the strategies of active student learning based on group work arranged to develop cooperation and interaction between students. Where each member is responsible for the success of themselves and their group.

In order for the cooperative learning process to occur in the group, according to Roger and David Johnson (in lie, 2002: 30) in the group there must be five basic elements, namely:

1. Positive interdependence between groups (positive independence) students must feel that they must depend positively and interrelated between group members. They feel that they will not be successful if other students are also not successful.
2. Direct interaction between students (face to face interface)
   The best learning outcomes can be obtained with ver bal communication between students, supported and positive interdependence.
   Students must work together and help each other in achieving learning goals.
3. Individual accountability
   In order for one student to be supportive in helping other students, each student must master the material that is used as a staple. Thus each member of the group is also responsible for the results of group learning.
4. Interpersonal and small group skills
   Social skills of students are very important in individual and group learning, so that dynamic group interactions can occur to copy learning and learn part of the cooperative learning process.
5. Group process efficiency
   Students process the effectiveness of their study group by explaining name actions that can contribute to learning and name actions that don't, and making name action decisions that can be continued or changed.

Cooperative learning in several studies shows positive results. Some experts in their findings related to cooperative learning found that cooperative learning provides advantages, namely (a) allowing higher learning outcomes, cooperative learning according to (Rosyda, 2004: 24) namely learning together and helping each other remaining and active learning strategies teachers can give assignments to their students to be completed together in small groups, and there is also a loss, One group of students has not reached the minimum limit of mastery, while the other group has reached ideal mastery in these circumstances the teacher can affirm those who already have low mastery through tutorials instead, the teacher fights to supervise the learning process and help various difficulties faced by his students.

Posamentier (in Widdiaharto, 2004) simply states that cooperative learning is the placement of several students in small groups and giving them one or several tasks. Some things that must be considered when students work in groups are as follows:

1. Each member in the group should feel part of the team in achieving a common goal.
2. Each member in the group must realize that the problem they are solving is a group problem, success or failure will be felt by all group members.
3. For the achievement of group goals, all students must talk or discuss with each other.
4. It should be clear that each individual work in the group has a direct effect on the success of the group.

Cooperative invironment although several students sit together but work individually in completing a task, or a group member completes a group task. Cooperative learning is more of an effort to empower peers, increase interaction between students, as well as mutually beneficial relationships between them.

Cooperative Learning emphasizes the presence of friends who interact with each other as a team in solving or discussing a problem or task (Suherman, 2003: 260). Students in the root group learn to hear other people's ideas or ideas, discuss agree or disagree, offer, or accept constructive criticism, and students don't feel burdened when their work is wrong. Abdurrahman and Bintoro (in Nurhadi, 2004: 61) stated that cooperative learning is a system in which there are interrelated elements. The various elements in cooperative learning are:

1. Positive interdependence
   Cooperative learning, teachers create an atmosphere that encourages students to feel mutually determined. It is this relationship that is maximized by positive interdependence.
2. Face-to-face interaction
   Face-to-face interaction according to students in order to stay face to face so that they can have dialogue, not only with teachers, but also with fellow students. Such interaction allows students to be a source of learning from each other so that learning resources are more varied.
3. Accountability
   Cooperative learning manifests itself in group learning. Despite having it, assessment is shown to determine students' mastery of the subject matter individually. The results of the individual research are then conveyed by the teacher to the group so that all members of all groups know who the group members who need help.
4. Ability to establish relationships between persons
   Cooperative learning, social skills such as tolerance, politeness towards friends, criticizing ideas instead of criticizing friends, daring to maintain a logical mind, not dominating others, mandiory and various other traits that are beneficial in establishing interpersonal relationships (*interpersonal retionship*) are not only assumed but deliberately taught.

Cooperative learning is formed by small groups of students consisting of four to five people. Each student learns from each other and works together in maximizing learning conditions to achieve the expected learning goals. Good interaction that occurs in groups is the key to success in achieving learning objectives in cooperative learning. To solve problems in the group, each group member must be able to subvert their ideas, make plans and find solutions and think how their ideas can be accepted and understood by other members so that good communication will occur between students.

The smooth implementation of cooperative learning lies in the war of each group member in solving a problem or working on a product. Believing in the expertise of each member is very important so that there will not be one or two people who are active and dominate group activities while others are passive.

Cooperative learning, the teacher should be able to complete the assignment of the teacher. Students should be able to sit in a circle or cross the table of every other group and work intrimentally. In this case the Master can act as a consultant, rolling back the problems to motivate the group to quickly find a solution.

This activity is a group of students studying with the main portion discussing mathematical tasks, in the sense of helping each other complete tasks or solve problems. Krismanto (2003) states that cooperative learning activities are related to many approaches or methods, such as experiments, investigations, explorations and problem solving.

With this new learning strategy, changes are expected from:

1. *Remembering* or memorizing (*Rote Learning)* towards thinking (*Thinking)* and understanding (U*nderstanding)*
2. Lecture to climbing model: *Discovery Learning*, *Inductive Learning*, or *Inquiry Learning.*
3. Learning individually to cooperatively.
4. *Positive (Behaviourist)* to constructivism, which is characterized by a change in the learning paradigm, from the paradigm of knowledge transferred from the teacher's brain to the student's brain (*knowledge transmitted)* to an interactive, investigative, exploratory form.
5. *Subject centred* to *clearer centred* (constructed knowledge students).
   Cooperative learning models that can be used include: *Cirele Learning / Learning Together*, *Group Investigation* (GI), Co-op co-op. Jigsaw, *Nubered Heads Together*, *Student Team-Achievment Divisions* (STAD), *Team-Assited Individualization* (TAI), *Taems Game Tournament* (TGT).

STAD Model Cooperative Learning

The STAD model of cooperative learning is one of the earliest models of cooperative learning discovered and developed by Robert Slavin and colleagues at John Hopkin University. The basic idea of STAD is to motivate students in groups to encourage and help each other in mastering the material used and shed an awareness that learning is important, meaningful and fun. The same opinion was conveyed by Robert Slavin who said that the STAD model of cooperative learning is a learning

strategy that is simpler compared to other cooperative strategies and is an easy model for teachers in applying learning. STAD can also be viewed as the simplest and most direct method of cooperative learning approach: Teachers use the STAD method to teach new academic information to students each week, either through verbal or written recitation. The students in the class are divided into groups or teams, each consisting of four or five group members, each team has heterogeneous members, both gender, race, ethnicity and ability (high, medium, low) each team member uses academic worksheets; and then help each other to master the teaching material through questions and answers or discussions between fellow team members and will be evaluated by the teacher to influence the mastery of the academic material that has been studied, and will be scored in the form of grades to each teacher by the teacher.

According to Slavin (in Sakdiyah, 2005: 61), STAD consists of five main components, namely:

1. Class presentation
   Class presentation is learning that is carried out in front of the class by the teacher classically, then students are asked to work in groups to solve the problems given.
2. Group
   Students are divided into small groups of four to five students per group. Each group must be heterogeneous both academic ability and gender, then students have group discussions, in these discussions students are expected to help each other solve problems.
3. Quiz
   A quiz is a formative test with the aim of knowing the success of groups and individuals given to students after the group discussion is over.
4. Individual progress score
   An individual progress score is the difference between a student's initial bag results and a student's final test. The initial score in question is the last math score that students have in learning previous material concepts. Meanwhile, the final score is the math test score given after the implementation of the STAD model cooperative learners. By comparing the two scores, each student's progress will be obtained. The criteria for giving each group's progress score to table 2.1 are the progress scores that will later become the contribution of each member to their group. Individual Progress Scoring criteria

Range	Improvement Points
More than one 10 points carried the basic score	0 points
10 points are carried over to 1 point above the base score	10 points
Base score up to 10 points above base score	20 points
More than 10 points of basic score	30 points
Perfect work (without paying attention to the initial score)	30 points

Source : Kahfi, 2003:7

5. Group awards
   Group awards are predicates to each student, obtained by looking at the group's progress score. Group progress scores are obtained by collecting each group member's progress score. Based on the progress scores of the group members, the teacher gives prizes in the form of predicates to groups that meet certain criteria, predicates that may be given, namely: super group, great group, and good group. Here is a table of group award criteria. Group progress scoring criteria.

	Score Range	Upgrade Points
	$5 \leq x \leq 15$	Good
	$15 < x \leq 25$	Strong
	$25 < x \leq 30$	Super

Source : Kahfi, 2003:5

Remarks : X is the average of the group
Examples of calculating individual progress scores and group awards are as follows: Examples of calculating Individual Progress scores and Group Awards

Student Name	Initial Score	Quiz scores	Improvement Pattern
June	89	80	10 Point
Jejen	78	75	10 Point
Santoso	75	80	20 Point
Relaxed	75	70	30 Point

Group mean = (10 + 10 + 20 + 30) : 4 = 17.5
Award Type: Great group.

Learning Effectiveness

Reigeluth and Merrill (in Degeng, 1989: 165) suggest that the measurement of teaching effectiveness must always be associated with the achievement of teaching objectives. There are objectives of teaching effectiveness indicators according to Reigeluth and Merrill, namely: 1) Speed of mastery of behavior, 2) Speed for work, 3) Compliance with procedures, 4) Quantity for work, 5) Quality of final results, 6) Level of learning experts, and 7) Level of retention.

The accuracy of mastery of the behavior behaved is also often the error rate for work, can be used as an indicator to determine the effectiveness of teaching, the smaller the error rate means the more effective the teaching. Teaching for work can also be used as an indicator of the effectiveness of pursuit, speed for work, the faster a student displays for work the more effective his teaching. Seeing whether a class is effective,

whether the measure of learning outcomes, or the measure of the learning process is effective then (Hunt: 1999: 4) states that teaching is effective if the learner experiences new and his behavior changes to a point. The accumulation of desired competencies but the idialis will not be achieved if you do not see students in the planning and learning process according to Hunt's theory there are five important parts in increasing learning effectiveness, namely: planning, communication, teaching, regulation and evaluation (Hunt, 1999: 2). Furthermore, Slavin (1994: 301) also stated that the effectiveness of learning consists of four indicators, namely: 1) Quality of learning, 2) Adjustment of learning levels, 3) Intensive, and 4) Time.

Quality of learning means the amount of information or skills presented so that it can be learned easily. The better the quality of learning, the better the learning outcomes. One of the efforts to improve the quality of learning is to improve the teaching process or on the variables of learning methods. (Degeng, 1989:14). The appropriateness of the learning level is the extent to which the teacher ensures the level of readiness of students to learn new material. While what is meant by intensive is how much effort the teacher makes to motivate students to teach learning tasks and subject matter given. The greater the motivation given by the teacher to students, the greater the activity of students, thus learning will be effective. In addition, learning will be effective if students can complete lessons in accordance with the predetermined time. What have students achieved? To answer this question, it should be known how many students managed to achieve the learning goal in a predetermined time. This method is in line with the learning effectiveness indicator proposed by Slavin (1995: 310), namely the learning quality indicator.

According to Diamond (in Mudhofir, 1999: 164) effectiveness can also be measured by looking at students' interest in learning activities. Suherman (1986: 78) states that interest influences the process and learning outcomes of students. If students are not interested in learning something then it cannot be expected that he will succeed well in learning it, on the contrary if students learn with interest then it can be expected that the results will be better. Eggen and Kauchak (1988: 1) suggest that learning is said to be effective if students are actively involved in the organization and findings given by the teacher. These learning outcomes not only increase student understanding but also improve students' character skills. Learning really needs to be considered how involved students are in organizing lessons and knowledge. The more active students are in learning, the greater the achievement of learning completeness, so the more effective the learning.

Increasing learning effectiveness there are five improvements that need to be considered, namely:

a. Teachers must develop wise lesson planning
b. Teachers must communicate effectively with their students
c. Teachers must develop instructional strategies that teach
d. The teacher must be able to master the class
e. Must evaluate correctly

How to Assess Maths Learning Outcomes

Learning outcomes and learning processes are both important; In this learning occurs the thought process. A person is said to think that the person is doing mental activities instead of motor activities. This can also be together with mental activity, with mental activity people can establish relationships between information that has been obtained and not motor activity. Thus students and display understanding and mastery of the material taught, with this it can be referred to as learning outcomes. How to assess mathematics learning outcomes will use tests, the purpose of holding tests to measure learning outcomes achieved by students. Tests can be used diagnostic assessment, summative and determination of achievement levels. Tests are widely held to motivate students so that they are serious about learning mathematics.

Types of tests:

a. Criterion Reference Test (TAK): a test used to assess students at the level of mastery or achievement by default.
b. Normal Reference Test (TAN): a test used to determine the position of a person, learner against so that it can be said whether he is above or below average.
c. Diagnostic Reference Test (TAD): which is a test that emphasizes diagnostic tests, although it can be used as a formative assessment.

   Not from the three types of tests (TAK, TAN, and TAD) in the form of objective tests or description:

   An objective test is a test whose assessment results will be the same by anyone who assesses, anytime or anywhere, because it is correct or the answer has been determined. While the description test is a test whose assessment results are relatively dependent on the assessment, therefore the description test is subjective.

   To determine objective tests and descriptions, we must look at mathematical characteristics such as:

   1. The object of mathematics is abstract
   2. Mathematics uses symbols that are empty of meaning
   3. Mathematical thinking is based on Axiom
   4. The way of reasoning is deductive

Table: Use of Tests in Teaching and Learning Mathematics activities

Mathematics Learning Objectives	Bloom's Cognitive Realm	Test Forms		Valuation
		Objective	Description	
Ingtan	Knowledge	Yes	Not	Not
	Comprehensive	Not	Yes	Yes

Perform mathematical manipulations	Application	Yes	Yes	Yes/no depending on the form of the test
Resolve routine issues	Analysis of evoluasi	Not	Yes	
Solve problems using high mental processes	synthesis			Yes

Mathematics learning activities, objective tests are useful for:

1. Assess material that has firm answers and many questions and can be answered in a short time.
2. Facilitate scoring even though there are many students and be objective in assessing
3. Diagnosing learners' strengths or weaknesses in learning maths

Disadvantages of objective tests:

1. It cannot be known the process of getting the answer so that the thought process of students cannot be followed.
2. Learning objectives related to the process can not be achieved even though the test is required to be correct by students because the correct final result is not guaranteed to get the correct result.
3. There is the possibility of guessing in answering questions so that it is feared that students become accustomed to speculating even though guessing and speculating are important in solving problems, but argumentation in guessing and speculating must be clear steps
4. The possibility of being dishonest and choosing answers, such as cheating
   The benefits of the description test are as follows:
   1. Uncover high intellectual abilities, because students organize their knowledge to find answers using their own words.
   2. Improve mathematical thinking, but tests about proving theorems already talked about will encourage memorization.
   3. Encourage students to be familiar in determining problem solving steps along with the reasons
      The disadvantages of the description test include:
      1. The material asked is difficult to be able to cover the entire material that students have learned
      2. Assessment may be less objective

3. It takes a relatively long time, both for those who pursue / answer the test and for assessors. (Hudojo, 1998)

Student Learning Activities

Students (learners) are an organism that lives within itself contained many possibilities and potentials that live and are developing in each of these students there is an "active principle" namely the desire to do and work alone.

Types of student learning activities according to Hamalik, there are eight groups, namely:

1. Visual activities : reading, viewing, drawing, observing experiments, demonstrations, exhibitions, observing others, working or playing)
2. Oral activities: presenting a fact or principle, relating an event, asking a question, giving advice, expressing an opinion, interviewing, discussing.
3. Listening activities: listening to the presentation of material, listening to group conversations or discussions, listening to a musical instrument playing, listening to radio broadcasts.
4. Writing activities: writing stories, reports, essays, coffee materials, sketching, summaries, doing tests, questionnaires.
5. Drawing activities : drawing, making graphs, diagrams, maps, patterns.
6. Metric activities: conducting experiments, selecting tools, conducting exhibitions, making models, organizing games, dancing.
7. Mental activities : reflecting, remembering, solving problems, analyzing factors, finding relationships, making decisions,
8. Emotional activities : interest, discernment, courage, calm and so on.

   The benefits of learning mathematics learning activities include:

   1. Students seek their own experience and experience for themselves
   2. Self-help will develop all aspects of the student's personal
   3. Fostering harmonious cooperation among students which in turn can facilitate group work
   4. Students learn and work based on their own interests and abilities, so it is very beneficial in the framework of the service of individual differences
   5. Fostering learning discipline and a democratic and familial learning atmosphere, deliberation and consensus
   6. Fostering and fostering cooperation between schools and communities, relationships between teachers and parents that are beneficial in student education
   7. Learning and learning are carried out realistically and concretely so as to develop understanding and thinking and avoid verbalism
   8. Learning and learning activities come alive as well as life in a dynamic society.

Student Activity Assessment Format

Assessing student activity in doing the questions given to students both in the form of objective tests and research tests using the written test method, namely selecting and supplying answers, including:

It is written; selects and supplies answers including; multiple choice, fill-in-the-blank and description. *Basic elements of cooperative learning,* Elements in cooperative learning include; (1) positive interdependence; (2) face-to-face interaction, (3) individual accountability; (4) skills to establish relationships between bribadi or social skills that are deliberately taught" (Abdurrahman &; Bintoro, 2000; 78-79).

a. Positive interdependence
   Cooperative learning, teachers create an encouraging atmosphere for students to feel they need each other. This needy relationship is called positive interdependence.
b. Face-to-face interaction
   Face-to-face interaction according to students in groups can meet each other face to face so that they can do dialig, not only with the teacher, but also with students. Such interaction allows students to be a source of learning from each other more fariasi.
c. Individual accountability
   Cooperative learning manifests itself in group learning. However, assessments are appointed to determine students' mastery of individual subject matter. Group scores are based on the average learning outcomes of all members. From this research, what is meant as individual accountability.
d. Interpersonal relationship skills
   Cooperative learning of social skills such as teglining, polite attitude towards friends, criticizing ideas instead of criticizing friends, daring to maintain a logical mind, not dominating others, independent, and various other traits that are useful in establishing interpersonal relationships (Interpersonal Relationship) are not only assumed but deliberately taught.

Unveiling; contains explaining the material to be studied today (ICT), repeating prerequisite material so that students remember what has been learned.

The stages of cooperative learning of the STAD model are as follows

1. Preparation; which includes:
   a. materials to match GBPP, worksheets, test sheets and test answer keys.
   b. Formation of teams / groups based on the sequence number of student apsen.
   c. using a basic score (Pre-test).

2. Presentation of lessons and new concepts by teachers / researchers includes activities:
   a. development, checking students' understanding by giving questions.
   b. Practice by asking questions to all students in the class
3. Group work which is this activity aims to make students learn together to understand the material / subject matter. At this stage students learn together in groups, starting from understanding, classifying, collecting through discussions with friends to the stage of mastering the material among their groups.
4. Individual tests, to find out the material mastery of the subject that has been taught.
5. Group awards by calculating the points/scores obtained by each group by adding up the points/scores obtained by students and then calculating the average score.

RESEARCH METHOD

This research is a class action research (PTK), so the types of research that need to be started include preparing action plans and providing actions to grade VI students of SD Negeri XI No. 40 Blimbing from the beginning to the end of the study. Researchers will conduct this research in the form of classroom action research and the research subjects used to measure thinking skills are grade VI students at SD Negeri XI No. 40 Blimbing while the research instrument used in this study is a test. Tests are held to blunt information about students' understanding of mathematical learning concepts. The test will be carried out every action, both starting from the beginning to the end in order to measure the ability during learning, so that at the end of the class action research researchers can obtain data.

Data and data sources

Data is the result of recording research in the form of facts or figures (Arikunto, 1996: 81). There are two kinds of data, namely:

1. Data in the form of numbers, the price changes or is variable called quantitative data (Sudjana, 19996: 4).
2. Data in the form of non-quantitatives is called qualitative data, which is data categorized according to the painting of the object being studied. For example: heal, damaged, failed, succeeded and so on. (Sudjana, 1996:4).

This research required qualitative data i.e. not numbers. While the source of data in this study is student attendance for one semester, activeness, skills, and student learning outcomes through tests.

Data Collection Techniques

The data retrieval technique used is a documentation technique, meaning data obtained from written data (Arikunto: 131). Getting data on student learning outcomes with the STAD model, researchers will conduct a written test in the form of determining the ability of students from students from medium, low and high levels.

Apart from that, researchers will also use interview techniques to be able to obtain data while the research producer:

1. Coordination stage
   Researchers prepare to conduct research, previously researchers coordinate with supervisors, what and how to prepare and rare good for researchers to conduct research at research locations that have been surveyed by researchers.
2. Preparatory stage
   Researchers held a discussion including:
   a. Determine the object of research, namely SD Negeri XI No. 40 Blimbing.
   b. Face to face the principal to apply for research permission
   c. Determine and provide materials / materials that will be applied to grade VI students
   d. Set up teaching attributes
   e. Designing research instruments
3. Implementation stage
   Researchers set the research period for two weeks: from December 3, 2007 to December 15, 2007, after completion of the first phase and the second phase.
4. According to (Mardalis; 1989: 53) he stated that the population is all individuals who are the source of sampling. Or a set of cases that need to meet certain conditions related to the research problem. The population of this study was all grade VI students of SD Negeri XI No 40 Blimbing by taking data on the learning outcomes of mathematics students through written test techniques in the form of groups, during the research period.

Research Steps

The steps of this research are to follow the action research steps stated by Kemmis (in Madya, 1994: 25), namely:
Cycle I :

1. Planning
   The planning stage contains the design of learning activities that will be carried out in an effort to help students learn concepts to the third power of a number. This plan contains the material that will be presented in learning, the learning objectives to be achieved, the learning methods to be used and the evaluation given.
2. Execution of actions
   The implementation of actions is to implement learning activities as contained in the plan. Learning actions are carried out by researchers themselves based on learning made before.
3. Observation
   Observation activities aim to document everything related to the provision of actions.

4. Reflection
   Reflection is an activity to analyze, understand, explain and conclude (Rofi'udin 1996: 19) so reflection activities are activities carried out to understand everything related to the process and results obtained in learning actions. This reflection stage contains alternative actions that need to be performed in the next action if the action that has been given has not been successful. Thus the results achieved in reflection activities are information about what has happened and what will be done next.
   The rare keepat is a cycle. The cycle is described as a spiral of action research as follows:

Cycle II :

1. Planning
   Provide exercises to students as well as role-play with the help of fingers and assign students to have group discussions about the problems given to students.
2. Action: Continuing to assign tasks preceded efforts to reduce fear of wrongdoing, anxiety and shame and Before giving tasks observe physical behavior and inform the assessment criteria that courage to do more questions can
3. Observation: Record students' work in observing their physical expression during lessons by keeping a diary and recording students' math work performance and interviewing students who are still having problems
4. Reflection: My attempts at activating students are chaotic because students are afraid of being wrong and passive. Students are only interested onceand shy about speaking and my math class is very passive how can I encourage students to be active in doing the problems I give and Some students have started to dare to speak and some students still seem afraid of being wrong, anxious and embarrassed.

Learning Completeness

Classroom action research is participatory and collaborative, which is carried out because there is a common concern for the classroom learning situation that needs to be improved, together with students in the classroom, expressing concern for improving the learning situation to explore what is thought and together try to find ways to improve the learning situation. Determine the focus of the strategy among them. (1) Develop action plans together, (2) Act and (3) Observe individually and together and (4) Reapply together and jointly reformulate plans based on fuller and more critical information. Those are the four main aspects of action research (Kemmis, et al, 1982: Burns, 1999), which in principle, planned actions should have some learning completeness, namely (1) Helping students themselves in learning situations including: (a) Overcoming classroom learning constraints, (b) Acting more effectively in class, and (c) Improving class success; (2) Helping students realize new potential to take action to improve the quality of work. Based on the above, the expected learning completeness between cycle I and cycle II as a foothold are: (a) increased student involvement in mathematics learning (b) increased understanding of research teachers

on the nature of the mathematics learning process as an extreme science, and (c) increased learning atmosphere from boring atmosphere to exciting and reminiscing. However, it turned out that the research teacher also became aware of his shortcomings in terms of fluency, accuracy and accuracy of mathematics, and related researchers also experienced a change in attitude. The conclusions made should include all changes or improvements in the researcher and the situation in which the research was conducted (Madya et al: 2002).

RESULT AND DISCUSSION

Data that were successfully collected during the research period that took place at State Elementary School XI No. 40 Bimbing, based on the title of the application of cooperative learning STAD model to determine the results of student learning and research objects, namely classroom action research (PTK) the results of this study are described:

a.Data presentation: Data is the plural form of the datum which is information obtained from one unit of observation (Sugiarto, 2006: 24). The study of data in the framework of this research is in the form of a table aims to facilitate the preparation of data so that it is also easy to understand and understand. The form of recitation of student learning outcomes with written test techniques which are divided into groups of 26 students who are the object of research and data that has succeeded in the research include data on formative test results, work tests and homework, where the study is in table form, including the average group (X) is a cooperative group and the average group (Y) is a non-cooperative group, Researchers sajika in the form of a table below:

Table 1.1. The mean relationship between the cooperative group (X) and the average of the non-cooperative group (Y).

No (1)	X (2)	Y (3)	X2 (4)	Y2 (5)	XY
1	59,22	48,10	3507,1	2331,61	2848,48
2	76,55	82,18	5859,90	6753,55	6290,87
3	78,33	89,44	6135,58	7999,51	7005,83
4	88,88	85,55	7899,65	7318,80	7603,68
5	81,77	92,11	6686,33	8484,25	7531,83
6	84,88	69	7204,61	4761	8586,72
7	67,10	57,88	4495,7	3350,1	3883,74
8	88,76	67,55	7878,33	4563,1	5995,73
9	75,77	66,88	5741,09	4472,93	9067,49
10	51,99	77,57	2702,96	3337,29	3003,46
11	63,33	71,11	4010,68	5056,63	4503,39
12	5,44	66,21	3415,23	4383,17	3869,31

13	66,99	77,77	4487,66	6048,17	5209,81
	942,34	931,55	66954,82	68842,7	64170,34

b. Data Analysis

It is known that the learning outcomes of grade VI students in the field of mathematics are the main mathematics of the *Root Three language* with the STAD model at State Elementary School XI No. 40 Blimbing. To analyze the data between the relationship between the cooperative group (X) and the non-cooperative group (Y), researchers used the Product Moment correlation analysis technique from Karl Pearson:

$$r_{xy} = \frac{Nxy - \left(\sum x\right)\left(\sum y\right)}{\sqrt{\left\{N\sum x^2 - \left(\sum x\right)^2\right\} - \left\{N\sum y^2 - \left(\sum y\right)^2\right\}}}$$

$X = 942{,}1$, $y = 931{,}53$

$X^2 = 6695{,}82$, $y^2 = 68842{,}7$

$XY = 64170{,}34$, $N = 26$

$$rx = \frac{26x64170{,}34 - (942{,}1)(931{,}53)}{\sqrt{\{27x6695{,}82 - (942{,}1)^2\} - \{26x68842{,}7^2 - (931{,}53)^2\}}}$$

$$rx = \frac{1668428{,}84 - 877594{,}41}{\sqrt{\{1740825{,}32 - 887552{,}41\} - \{1789910{,}2 - 867748{,}14\}}}$$

$$rx = \frac{7930834{,}43}{\sqrt{853272{,}91x922162{,}06}}$$

$$rx = \frac{7930834{,}43}{\sqrt{786855904427{,}7949}}$$

$$rx = \frac{7930834{,}43}{887048{,}98}$$

$= 0{,}8915$

c. Discussion

Hypothesis testing needs to be known that the number of subjects studied was 26 students (total sample). In column N and reading it to the right in the table of Product Moment r values with a signification level of 5% we will find the number 0.388. This number indicates the cyclification limit number, while the average calculated value obtained obtained at 0.8915 means that the relationship between the learning outcomes of cooperative group students and non-cooperative groups through cooperative learning of STAD model students is quite good. Because the calculated value obtained by r = 0.8915 means far above the siknification limit of 0.388.According to the results of the data

analysis obtained, student learning outcomes with the STAD model learning strategy are very cyclified between the learning outcomes of cooperative group students with the learning outcomes of non-cooperative group students. This can be due to students who have sufficient learning outcomes in group A, and vice versa learning outcomes according to group B are good, the possibility of group learning outcomes is quite good. In the author's opinion, this is due to the field of Mathematics study which is an exact subject, but grade VI students of SD Negeri XI No.40 Blimbing have the initiative to learn mathematics motivated by their subject teachers, and students at SD Negeri XI No40 Blimbing in learning mathematics already have perseverance, cohesiveness in learning in the form of groups, good thinking power or abilities so that when entering junior high school they will get quite good achievements also. This is in accordance with Winkel's opinion (1990: 80) as follows: each teaching and learning process has its own starting point based on new abilities in accordance with learning objectives. The cooperative learning model at the elementary school level is very important to be applied in order to have positive experiences from learning outcomes that hold good learning achievement. So that the application of cooperative learning has a sustainable relationship to achieve good achievements as well. So that during the teaching and learning process of Mathematics at State Elementary School XI No. 40 Blimbing will produce even better learning achievements.

CONCLUSION

The results of the data analysis obtained can be concluded that the application of cooperative learning of the STAD model to improve the activities of mathematics learning outcomes of grade VI students of SDN XI No. 40 Blimbing, in Blimbing District, Purwantoro Village, Malang Madya City, is quite good if you apply the STAD model cooperative learning method so that students can get better learning achievements next and suggestions are needed With the application of STAD model cooperative learning To improve the activity of Mathematics learning outcomes in elementary level students, the author recommends that : For students: Students who obtain low learning test results so that they can study hard and diligently, Students who still have low abilities from group study test results can increase learning motivation even more enthusiastically, Students who obtain good learning test results and abilities in solving a Mathematics problem in the form of groups in order to maintain or improve their learning achievement, in order to obtain even better Matekatika scores, For Mathematics Teachers: Can carry out the best possible activities according to the curriculum that has been determined so that students can maintain the achievement of their learning outcomes, Can master and use efficient learning methods so that students do not have difficulty in solving Mathematics problems such as STAD model cooperative learning, For Schools: Improving innovative learning models for students

so that one day when students graduate from elementary school can have quality learning achievements in order to help further learning processes at the junior high school-higher education level. For parents, it can encourage children's initiative in learning the field of Mathematics and can create a positive environment at home, especially for children's learning activities.

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