Application Cooperative model type STAD (Student Teams Achievement Divison) to increase mastery of students learning result of Grade VI Elementary School Kasi – Kassi Makassar

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ABSTRACT

This study aims to find approaches patterns of science teaching that lead to improved elementary student learning outcomes mastery the concept of the solar system using STAD cooperative model type. The approach used is qualitative and classroom action research that consists of three cycles that includes four stages: (1) planning, (2) implementation, (3) observation, and (4) reflection. The subject of this study is that one person teacher and 36 students of grade VI Kassi-Kassi SD Negeri Makassar. The focus of research is the application of the model type STAD cooperative and thorough student learning complete. The data were collected using documentation, testing, and observation sheets were analyzed deskriptif. The results showed activities of teachers and students to increase with increasing total student learning outcomes in science subjects at school.

Keywords: Type STAD cooperative learning, Science, and mastery of learning outcomes.

INTRODUCTION

To improve the relevance of learning programs, state and local requirements, the developers science curriculum in primary schools should be able to proactively respond to the development of information, science and technology, and the demands of decentralization in education.

The application of the science curriculum in elementary school, especially in SD (Elementary School) Kassi-Kassi Makassar still encountered many obstacles, including the teacher's role as a mediator and facilitator mostly not understood very well the changing demands of the science curriculum in elementary school, as a result of learning is done in the classroom tends to deliver the products science course in the form of facts and concepts through lectures which are considered quite effective to transform scientific knowledge, while the science knowledge and scientific attitudes received less emphasis in learning. In addition, students in SD Kassi-Kassi Makassar also have experience difficulty in learning science knowledge related to process and product as a result pembelajran conducted by teachers who have not been targeted. Data values daily test or repeat the block for the last three years the average ketuntasannya not yet reached 80%. Percentage is generally only be achieved through remedial.

Students showed mastery lack solve problems or pictures related to science. However, there are also students who have been able to solve the problem of science, but it is not offset by the ability to adequately translate scientific concepts scientific knowledge gained as a result students can not be applied to daily life so that the knowledge gained less meaningful.

The results related to the learning of science in Elementary Schools, among others: Jumrah (2006), states that the use of process skills approach using model STAD Cooperative Study on Learning Concepts Sentient Beings in SD can improve students mastery of learning are optimal. Semiawan, et al (1985) noted the importance of science process skills mastered ranging from elementary school on the grounds (1) development of knowledge takes place so quickly that no longer possible to teach all of the facts and concepts to students, (2) students will be better able to understand the concept of the abstract if learning through concrete objects and just do it yourself, (3) the nature of scientific discovery relative truth, and (4) in the learning process of concept development is
inseparable from the development of attitudes and values. Skills will be the vehicle for the hook between concept development and the development of attitudes and values.

Learning model used by the teacher is one of the determinants of mastery achievement of student learning, because the selection of good science teaching models spur active students in the learning process, either individually or in groups that have an impact on the achievement of mastery in the classical student learning.

The principle of learning by placing students as subjects (center) and the teacher as facilitator or mediator in an effort to increase the productivity of learning can be adopted from the educational theories that apply. Efforts to achieve success in the classical science learning, the use of cooperative learning model is one good option, considering the trend of student interaction in the learning process, students are motivated to low learning outcomes improve learning outcomes align with the results of his high learning. According to Lundgren (1994), the benefits of cooperative learning can enhance motivation, learning outcomes, and retention of the subject matter or memory storage for longer.

The research seeks to improve the mastery of learning outcomes of students in learning science, especially the subject of the Solar System. Efforts to improve student mastery of learning outcomes in the presidential primary Kassi-Kassi Makassar, especially grade VI is believed to only be done by improving and enhancing classroom learning system.

Type of cooperative learning model STAD (Student Teams Achievement Divisions) was a model of learning through several phases and applied to deal with heterogeneous academic skills in which students are given the opportunity to collaborate with peers and elaboration in the form of discussion groups (high capacity high, medium, and low) to solve a problem.

Learning Science in SD Kassi-Kassi Makassar implies a change in student learning outcomes assessment system that requires an appropriate learning model. Type STAD cooperative model, an appropriate choice in terms of increasing student mastery of learning outcomes, especially pembelajaran concept of the Solar System through the process skills approach. This model, the learning activities students can formulate a more konprehensip learning interactions that can increase motivation and mastery of materials science better, but this model requires the preparation and implementation of the action that is more mature and can be properly evaluated and measurable results. Indicators of success in this study achieved when 80% of the total student has achieved the minimum completeness criteria of 65 and teachers have implemented the model in any type STAD cooperative learning in elementary school.

COOPERATIVE LEARNING

Individual human beings, because they have a tendency need each other so that there is interaction in the context of mutual benefit, mutual love, and loving to others or termed as social beings. Cooperative learning is learning in a conscious and deliberate in creating interactions in order to improve the understanding of an object. According Abdulrahman and Bintoro in Nurhadi (2003: 50), cooperative learning is learning consciously and systematically develop successive interactions teaser, compassion penance and reparation foster among students as an exercise in living in a real community.

In cooperative learning by Abdulrahman and Bintoro in Nurhadi (2003: 60), contained four key elements that make sense of cooperative learning, ie, (1) Positive Interdependence Teachers create an atmosphere that encourages students gnats are interdependent. Students interact promotion allowing fellow students to motivate each other to achieve optimal learning outcomes. Mutual dependence of these students can only be achieved if students are achieving interdependence, interdependence in completing assignments, substance dependence or other Salain, role interdependence and reward interdependence,(2)Face to Face Interaction Cooperative learning requires students to each other face to face so they can engage in a dialogue, not only with teachers, but also with fellow students. This kind of interaction is very important because there are students who feel younger learn from each other, (3) Individual Accountability is showing a form of cooperative learning in the learning group. Nevertheless, the assessment is intended to determine the students' mastery of subject matter.
individually. Individual assessment results are then presented by the teacher to the group so that all group members know who the members of the group who need help and who members of the group who can provide assistance. The value based on the average result of learning all its members, each member of the group must provide for the betterment of the group urun. (4) Maintaining Interpersonal Skills Personal Cooperative learning social skills not only assumed but deliberately taught by teachers, such as tolerance, courtesy of the Friends, criticized the idea is not to criticize your friends, dare maintain logical thought, do not dominate others, self, and interconnected nature of the various interpersonal relationships (interpersonal relationship), (5) Characteristics of Cooperative Learning In traditional learners also known as the study group, but there are some essential differences between cooperative learning groups with traditional learning group.

TYPE OF STAD

Type of STAD (Student Teams Achievement Divisions) was developed by Robert Slavin and his colleagues from Johns Hopkins University (Erliena AA, 2004: 83). This type is considered as the simplest and most eloquent directly to students through cooperative learning model. The teachers use a type STAD to teach new academic information to students every week, either through verbal or written presentation.

The students in the class were divided into groups or teams, each consisting of 4 or 5 members of the group, each member of the team has a heterogeneous, both gender, race, ethnicity, and academic ability. Each member of the team using academic worksheet, and then help each other to master the teaching material through questioning or discussion among fellow team members. Individually or in a team, every week or every two weeks by a teacher's evaluation to determine their mastery of the academic material they have learned. Each student and each team is given a score on mastery of materials, and to students individually or in teams of high achievement or to obtain a perfect score awarded. Model Lesson kooperative type STAD (Erliena, A.A, 2004: 85):

1. Divide students into small groups of 4-5 people. Ordering Students from the ground up according to certain academic performance of students and then divide the list into 4. Taken one student from each assignment as a member of each team. Ensure balanced team formed by gender and ethnic origin.
2. LKS and short quizzes make the lessons planned for in order to teach. Task team members thoroughly mastered the material to be presented and help their team members to thoroughly master the material.
3. At the time explaining STAD in the classroom, read the tasks to be done team.
4. When it is time to give the evaluation quiz or assignment to another, giving wakltu sufficient for students to solve problems that test. Here, students are not allowed to work at the quiz, they must show that the individual has learned.
5. Creating individual scores and team scores. STAD team scores on a score based on the improvement of the team than the score of their own past.
6. Recognition on student achievement. As soon as the calculated points for each student and compute team scores, should prepare some sort of recognition to any team that reaches an average increase of 20 or more.

ACHIEVEMENT OF LEARNING AND COMPLETENESS

According to Ahmadi (1976: 14) in his book entitled "Measurement and Assessment of Education", achievement is the success rate of students in learning subject matter in schools and expressed in terms of test scores on a particular subject matter. Student achievement is the success gained from the study. In the Indonesian dictionary, is defined as achievement of the results one after doing something specific, or high and low results to be achieved one of a particular activity that can be measured with a certain measure. A similar view is expressed in the Big Indonesian Dictionary that perestasi is "outcomes of what is done or already cultivated from learning, working, exercising, and so
According Soewondo in Jumrah (2006: 11) learning achievements is the success rate of the students in learning subject matter in school given by the teacher. The results are expressed in terms of scores or values obtained from tests on the subject matter in question. Bloom defines achievement as changes in behavior that includes three domains, namely: knowledge or cognitive, or affective attitudes and skills or psychomotor.

Based on the definition as mentioned above, it can be concluded that academic achievement is a measure of the success of students after a lesson sector in education, it is necessary to know the form of the measurement test. In the context of Science in Elementary Curriculum, academic achievement is expected if the student has achieved learning outcomes are optimal in any or all of the subject matter, which distilakan as mastery learning outcomes. Individual's mastery of learning outcomes at least got a score of 65 or completeness reaches 80% in the classical style.

Studying thoroughly is a philosophy that states that a proper system of teaching all students can learn with good results from almost all the subject matter that is taught in school. Teaching materials that are used as a vehicle for achieving educational goals are shared or units, each unit consisting of learning materials are sorted in brief, systematic from the easy to the difficult material. Each student is expected to master one unit of study before being allowed to learn the next lesson unit, students who fail to master a particular unit of study should be given to a unit of study or remedial repairs.

Learning system that embraces the concept of learning completely discrete, namely (1) Teaching is based on the educational objectives that have been determined in advance, (2) Noting individual differences, and (3) Evaluation carried out continuously (continuous evaluation) and is based on criteria (formative evaluation and summative evaluation).

**SOLAR SYSTEM CONCEPTS IN ELEMENTARY SCHOOL**

Stars are large celestial bodies emit electromagnetic waves such as light. The sun is a star that we know that were located closest to the Earth. In addition to stars, celestial objects which we know is the planet. Planets do not emit its own light, but receive and reflect light. Planets orbit around the sun. The composition consisting of the sun (the light source) and the celestial bodies that move around the sun is called the solar system. The planets in the solar system consists of eight planets, namely (1) the Planet: Mercury, Venus, and Earth, (2). Outer planets: Mars, Jupiter, Saturn, Uranus, and Neptune.

The sun, the earth, and the moon is in the solar system interact with each other, resulting in, among others, we feel the time difference, the different seasons and the different natural conditions. Earth rotates on its axis is called rotation, the earth rotates once took 24 hours. Due to the rotation of the earth day and night. Not all areas of the earth lighted by the sun, so that the part that is exposed to sunlight during a turn, while areas that do not receive sunlight dark (night shift). Earth around the sun is called a revolution. Earth circulated requires quite a long time compared with the field rotates, which is 365.25 days each time.

Moon revolves around the earth in an average of 29.5 days with a moon rotates on its axis. Due to the time they are the same, then the surface of the moon that we see on earth is always the same, but the moon's surface exposed to the sun changes. Lunar eclipse occurs as the sun was blocked by the earth to the moon. Lunar eclipse occurs at night. In the event of gernaha notch, which is located in the shadow of the earth.

Solar eclipse occurs during the day. Position of the sun, moon and the earth are in a straight line or a horizontal line. There are two kinds of solar eclipse, the total solar eclipse and a partial solar eclipse. Total solar eclipses occur when the Earth's surface darkened by the sun blocked by the moon, while the partial solar eclipse occurs when the Earth's surface partially blocked by the moon's shadow.

Interaction of the sun, earth and moon impact on human life. In addition to the time difference, night and day, there are also differences in the northern and southern hemisphere. In our country only had two seasons, dry and rainy seasons. In the northern and southern hemisphere far from the equator has four seasons, summer, fall, winter, and spring. Principles of learning "Constructivism" contains ideas about the role and function as subyel student learning, individual students are expected to find and move continuously complex information and
match new information with the old rules and revise the rule if it does not fit anymore. In this context, the role of the teacher is not just limited to transform knowledge, but to the students' ability to build mengotimalkan ability to formulate and use learning strategies.

The success of science in the classical learning using cooperative learning model tekinik type STAD is the simplest and most likely to be applied in teaching in primary school. The model used STAD students are given the opportunity to collaborate with peers and elaboration in the form of discussion groups in solving a problem. In STAD learning through some phases, namely (1) Introduction, define, and explain the purpose of learning, (2) the presentation of information, (3) organize the students in the study group, (4) help students work in groups, (5) gives quiz test on the subject matter, and (6) gives an award in the group.

METHODS

This study aimed to find alternative models of learning in primary science concepts, particularly the Solar System are effective in order to improve student learning outcomes completeness. The model will be tested is the model type STAD cooperative learning, so this research is the development of research.

This is a descriptive study, therefore the necessary observations covering the activities of teachers and students in learning, cooperative skills of students, student responses, and student learning outcomes. In addition, research conducted on the basis of problems in the classroom and implemented in the classroom without disturbing others, the research can be classified as action research (classroom action research).

The research was carried out in the sixth grade presidential primary Kassi-Kassi Makassar. Classroom action research model used is a model of Kemmis and Mc Taggart in accordance with the steps: (1) identification of initial ideas, (2) determine the facts and analysis, (3) plan includes a number of action steps, (4) the implementation of the action; (5) monitoring the implementation and impact, (6) reflection by explaining the failure of implementation if any and the impact, if necessary revise the main idea (Jumrah, 2006: 32)

The study is divided into three cycles adapted to the learning plan is based on the number of face-to-face on the subject of Solar System

1. First Cycle
   a. Plan

   Researchers plan of action based on the learning objectives of the Solar System material. Measures are formulated to achieve the defined indicators, among others, the ability of teachers and students in the use of skills in the process of teaching and learning activities through cooperative learning model type STAD, students' understanding of science concepts taught in the basic competency appropriate lesson plans that have been prepared, and increasing mastery of learning outcomes through the use of cooperative learning model type STAD. Researchers also prepared sheet instruments such as observation and achievement test.

   b. Implementation

   1) Researchers prepare all the related learning materials that will be taught include worksheets, divide students into groups of 4-5 students, and perform tests to determine pre prerequisite knowledge already possessed by students.

   2) Researchers applying implementation phases, starting with the presentation of the material, the academic division worksheets each student in a team / group, and the students help each other to master the teaching material through questioning or discussion among fellow team members

   c. Observation

   1) Individually, be evaluated every week to learn the mastery of academic material that has been studied using tests and a final evaluation to determine students' mastery.
2) The ability of teachers and students in the use of skills in the process of teaching and learning activities through cooperative learning model type STAD observed every time the teaching and learning activities using the observation sheet.

d. Test
Each cycle evaluation form mengetau achievement test for the extent to which the implementation of cooperative learning strategy STAD type made oleg teachers through learning outcomes achieved by students in tests.

e. Reflection
1) Analysis of the results of observations of the ability of teachers and students in the skills of the teaching-learning process through STAD cooperative learning model type, the results of a written test on the student's academic abilities.
2) Analysis of the weaknesses in the planning, implementation, and observation.
3) Improvement of learning scenarios and research instruments used. The results of the analysis of the first phase of reflection on the cycle used as a reference base for planning the implementation of the treatment in the second cycle.

2. Second Cycle
The second cycle is the implementation of corrective action learning outcomes first cycle on the subject of the next, and so repeated with improved learning. In the second cycle was also performed; planning, implementation, evaluation, testing, and reflection. Analysis of these stages will be used as baselines for planning the implementation of the third treatment cycle include: improvement of instructional media, teaching methods, and classroom management process.

3. Third Cycle
The third cycle is the implementation of the results of corrective action learning cycle on the subject of the next two, and so repeated with improved learning, in order to obtain an alternative model of learning science concepts learned in elementary school, especially the matter of effective solar systems in order to improve students' mastery of learning outcomes.

Data collection in this study through:

a. Documentation. Documentation techniques used to obtain information related to the analysis of the students, including the prerequisite knowledge.

b. Observation. Observation techniques aim to collect research data using observation checklist that has been developed in the form of questionnaires. Questionnaires were used or intended to observe the ability of teachers and students' activeness to type STAD cooperative learning model. Scores for each question or observation may be a number. However, at the final stage of the scores are averaged and converted into qualitative. Scale assessments made by the range of 1 to 4. The interpretation of these figures is as follows: 1 = very poor, 2 = adequate, 3 = good, 4 = very good with scales / categories, including lack of scale 10-16, 17-24 pretty, 25-32 is good, and the scale of 33 - 40 is very good.

c. Test. Tests of student learning outcomes developed in order to obtain data on student learning outcomes completeness, the formulation adapted to the science curriculum in elementary and based on the lattice and the material has been learned. This test will be made in the form of multiple choice (multiple choice) by 30 items, which include aspects of cognitive, affective and psychomotor. The scoring for each item will be based on right or wrong answers. Where is the correct answer will get a score of 1 (one) and a wrong answer will get a score of 0 (zero).

Data processing techniques, in particular mastery of learning outcomes that will be used in this study as well as a performance indicator of success in the classroom action research study of the Solar System with the application type STAD cooperative learning model to improve the mastery of individual learning outcomes at least got a score of 65 or mastery in the classical at 80 %. Formula completeness according to Ministry of Education (1994) in Jumrah (2006: 37), namely
The number of scores obtained by students

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\text{Individual mastery} = \frac{\text{Number of scores obtained by students}}{\text{Total score of the whole matter}} \times 100\%
\]

and,

\[
\text{Classical completeness} = \frac{\text{Number of students who have completed}}{\text{Number of students}} \times 100\%
\]

RESULTS AND DISCUSSION

Data on diagram 1 shows the average assessment of the teacher as a researcher for the learning of science in primary schools, in particular the concept of the solar system for the management of type STAD cooperative learning for five indicators observations, namely (a) pedahuluan, (b) core activities (c) cover; (d) the management of time, and (e) observation of classroom teaching and learning in every activity. Indicators are observed in the sixth grade elementary school Kassi-Kassi Makassar.

![Diagram 1. Results management type STAD cooperative learning](image)

Observations of cooperative learning management through PFM type STAD, showed an increase in each cycle management of learning. In the third cycle of learning management observations showed improvement in the category very well. Thus ends the cycle of observation aspect-3.

Diagram 2 shows the activities of teachers and sixth grade elementary school student Kassi-Kassi Makkassar Cities in learning, all teachers and students in their teaching: In cycle 1 for 0.80 and 0.72 for student activities; activities of teachers in cycle 2 increased to of 0.90 and a student activity also rose by 0.85; activities of teachers at cycle 3 rose to 1.00 and student activity also increased to 0.92;

![Diagram 2. Teacher and Student Activity during](image)

The increase in the activities of teachers and students in cycle-3 is maximal and optimal with the category very well, so no need to proceed to the next cycle. Application of Model Concession Agreement kooperatip type STAD of nine indicators, namely: (1) Delivering a specific learning
objectives, (2) Linking previous learning, (3) Organize the students in the class, (4) Guiding students doing worksheets, (5) Encourage and cooperative abilities melatihkan and skills of the students, (6) Guiding students summarize learning materials, (7) Provide feedback; (8) Provide a quiz, and (9) Provide recognition / awards. Based on data from nine indicators above the teacher's activities are categorized very well. While the student activities of the 10 indicators are: (1) Listen / observe teacher's explanation, (2) Reading books students, worksheets, etc., (3) Doing the worksheets in the fam. Learning, (4) Practicing conduct cooperative skills, (5). Practicing the skills of process, (6) discussion between students and teachers, (7) Presenting the results of the group; (8). Summarize the subject matter; (9). Quiz, and (10 Receiving recognition / awards, shows students in teaching and learning activities are also considered very good.

Data at 3 in the classical diagram showing aspects of cooperative student with PKP type STAD an increase during a lecture progresses, the principal material 1 (cycle 1) an average of 3.25; principal ingredient 2 (cycle 2) an average of 3.39, and subject 3 (cycle 3) the mean of 3.67.

In the third cycle of cooperative aspects of students already in the category of very good, so the next cycle no longer continue. While the skills of the PKP Eight kinds of skills were observed in each cycle suggests that the cycle 1 there are 3 types of skills that the students do in the classical obtain an average score in the bottom three. After reflection and learning infrastructure improvements in cycle 2 turns the rest of the kinds of skills that the average scores obtained in the classical style in the bottom three. Further more a reflection that the entire cycle 3 has the kind of skill score in the top three. This suggests that the average skill types are categorized both processes are observed. Of the three cycles tested PTK demonstrate the applicability of PFM type STAD can improve science learning outcomes, especially the concept of the solar system. Data in Appendix 6 and the results if the data on the chart 5 shows an increase in students' mastery in the classical every cycle.

The number of students who achieve a minimum completeness criteria of learning outcomes in the first cycle, second, and third respectively is 17; 27, and 31 students from 36 students, whereas in the classical gained mastery in one cycle of 17/36 x 100% = 47.22%. In the second cycle of mastery
obtained at 27/36 x 100% = 75% and gained mastery in the third cycle of 31/36 x 100% = 86.11%, for the third cycle was nearly 100% in the classical mastery is achieved and the remaining 13 , 89% of which have not reached the minimum standards mastery klasikal.Hal shows that in each cycle an increase in performance with increasing mastery learning. Increased mastery of learning outcomes of each cycle is comparable to the response of the students were very baikter facing the implementation of TOD, it is indicated from the questionnaire given to the students. Increased student responses are represented in the diagram 6; prior to the PTK student responses for 73.57% of the activity of PBM was after PTK students' response to PBM meningkar of 87.88%. This increase gives special meaning for the students indicated 90% of students want to use the pattern of PTK PBM activities. Learning strategies to use in teaching science process skills in elementary school, especially the concept of the solar system is one of the strategies that can optimize student learning outcomes, this can happen because the approach focuses on students as a principal and teacher as a mediator or facilitator in teaching. One type is the type of learning skill process of STAD (Student Teams Achievement Divisions) in which students in teaching and learning activities are grouped into 4-5 people and are varied or heterogeneous, and more emphasis on cooperation among students in the group to optimize learning outcomes of students either individually, groups, as well as classical.

This study demonstrates both the individual student responses, classical, or groups, in particular the sixth grade elementary Kassi-Kassi to the subject of the solar system using the type STAD skills very well, which had an average increase significantly. The increase was one of the causes is the optimization of the learning activities that impact on improving learning outcomes. Improved learning outcomes can happen because the process and the more optimal approach to teaching and learning puts students as a creative object. Data on diagram 5, shows that the optimal student learning outcomes is directly proportional to the activities of teachers and students in the process skills in addition, because of the knowledge and understanding of teachers 'and students' learning management skills type STAD good process. Improved optimal learning results in this study, is also influenced by the understanding and implementation aspects of the cooperative type STAD good student.

CONCLUSIONS AND RECOMMENDATION

Based on the analysis of data in this study, it was concluded matters related to problems in the study, namely;

1. Activities of teachers in applying the model type STAD kooperatif of the nine observations each on cycle-3 categorized very well. While the activity of the 10 indicators of student observations each on cycle-3 is also very good.

2. Student achievement is achieved after implementing STAD cooperative model types in the sixth grade SD Kassi-Kassi, in learning the concept of the Solar System has increased in every cycle. This shows that in each cycle an increase in academic achievement by the increased mastery of student learning outcomes, both individually and in the classical style.

3. Students response to the implementation of TOD in the sixth grade SDN Kassi-Kassi Makassar city before the PTK for 73.57% of the activity of PBM while after PTK students' response to the PBM increased by 87.88%. This increase gives special meaning for the students indicated 90% of students want to use TOD PBM activities. That the results of this study more comprehensive, it is suggested further research related to other subjects in science subjects and carried out not only in the sixth grade, but also the other class.

REFERENCE


