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Application of the Pairs Check Type Cooperative Learning Model to Improve Natural Sciences Learning Results of Students in Straight Motion Basic Materials

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ABSTRACT

The objectives of this study are: l) To describe the learning activities of class IX students of SMPN 1 Kendari who are taught by applying the pairs check cooperative learning model; 2) To know the description of Natural Sciences-Natural Sciences learning outcomes of class IX students of SMPN 1 Kendari who are taught by applying the pairs check type of cooperative learning model; and 3) To determine the increase in Natural Sciences learning outcomes Class IX students of SMPN 1 Kendari who are taught by applying the pairs check type of cooperative learning model? This type of research is Classroom Action Research which has been carried out in 2 (two) cycles. The subjects in this study were all students of class IX SMPN 1 Kendari, totaling 28 students. From the results of data analysis, it is concluded that: l) student activity with the application of the pairs check cooperative learning model in each cycle tends to improve and increase. This is indicated by the average score of student activity in the first cycle of 2.38 which is included in the fairly increased category in the second cycle to 3.40 which is included in the good category; 2) Natural Sciences learning outcomes of class IX students of SMPN 1 Kendari who were taught using the pairs check cooperative learning model obtained by the distribution of values: in the first cycle the scores were 34 to 88 with an average value of 60.8; in the second cycle, the scores were obtained from 46 to 92 with an average value of 76.2; and 3) Natural Sciences learning outcomes class IX SMPN 1 Kendari taught using the pairs check cooperative learning model on the main material of static electricity can be improved. This is indicated by the value obtained by each individual tends to increase from cycle I to cycle II; the average value of learning outcomes of Natural Sciences students has increased, the GCC is shown by the average value of student learning outcomes in the first cycle of 60.8 rose to 76.2 in cycle II. Percentage number of students who had completed also increased, which percentage student which was completed in the first cycle was 42.9%, increasing to 82.1% in the second cycle.

Keywords: *Cooperative Learning Model, Pairs Check Type, Natural Sciences Learning*

I. INTRODUCTION

Natural Sciences as part of Natural Sciences is a field of study that is taught from basic education to higher education, so it cannot be denied that the field of Natural Sciences studies also plays an important role in efforts to improve the quality of human resources. Natural Sciences is also a branch of Natural Sciences that has contributed a lot to the development of Natural Sciences and technology.

As a branch of Natural Sciences, Natural Sciences include aspects of products, processes, and values or attitudes, so that learning needs to pay attention to these three aspects proportionally. However, Natural Sciences learning in schools still focuses a lot on teaching concepts / products and is memorizing in nature, paying less attention to aspects of processes and values that require students to carry out activities aspects of processes and values that require students to carry out activities and shape their attitudes as aspiring scientists. Therefore, models, strategies, and / or learning approaches in schools that emphasize aspects of process and values are deemed necessary.

In relation to efforts to improve student outcomes, creativity, ability, and independence in learning, a teaching approach is needed that allows students to be invited to be more active in paretic Natural Sciences in teaching and learning activities, learning full of curiosity, seeking, understanding, and finding new knowledge . One model of teaching Natural Sciences that can be applied in Natural Sciences learning and enables the realization of such teaching and learning activities is the Pairs Check type of cooperative learning model.

Based on the results of preliminary observations at SMPN 1 Kendari on March 24, 201 8, there was information that the learning Natural Sciences in class I X is still a lot that is focused on rote teaching and learning process is dominated by teachers, while students are less active role in when the learning process takes place. In this

case the learning model applied is a conventional learning model. This situation makes students saturated and there is a lack of interaction between students and students and students and teachers in teaching and learning process activities. As a result, students find it difficult to digest or understand the material being taught. In addition, teachers are also less negative in managing teaching and learning activities because in teaching teachers still apply a direct learning model where teachers dominate learning so that students tend to be passive and do not dare to express their opinions / ideas. This can be seen in the average Natural Sciences learning outcomes obtained by grade IX students in the even semester of the 2018/2019 academic year, which were 5.3. This value is below the minimum learning completeness standard set by the curriculum, namely 6.5 (source: teacher in the field of Natural Sciences and Vice in the field of curriculum).

The results of interviews conducted with Natural Sciences teachers in class IX on May 11, 201 8 obtained information that there are still learning difficulties of students in learning Natural Sciences, especially in the subject matter of straight motion, students' mastery of this subject matter is still low, which is indicated by an average value. Daily tests on this subject matter in the odd semester of the 2017/2018 school year are 58.This score is still below the minimum learning completeness standard set by the curriculum, which is 65.

The findings above indicate that the student learning outcomes in Natural Sciences subjects, especially in the subject matter of straight motion, which are achieved are classified as low because they have not achieved mastery learning. So by looking at this factor it is necessary to think about efforts to improve Natural Sciences learning outcomes, one of which is the selection and application of the appropriate learning model and enabling interaction between teachers and students and between students and students. More and more students are actively involved in the teaching and learning process, and allow students to interact between students and students and between students and teachers so that students have the courage to express their opinions / ideas, this can increase students' understanding of the material being taught and improve student learning outcomes. The alternative given to improve learning outcomes is to apply one of the cooperative learning models, namely the Pairs Check type of cooperative learning model.

The Pairs Check type of cooperative learning model is a learning model that provides opportunities for students to share information with their classmates. Students are grouped in pairs on a bench, one person presents the problem and the friend does it, checks the correctness of the answer, exchanges roles, concludes and evaluates. The application of the Pairs Check type of cooperative learning model is expected to improve student learning outcomes, especially Natural Sciences learning outcomes for grade IX students at SMPN 1 Kendari. The choice of the Pairs Check type of cooperative learning model is because the learning model prioritizes student activeness and gives students the opportunity to develop their potential and creativity maximally in sharing information and prioritizes cooperation between students and teachers as well as between one student and another student.

II. LITERATURE REVIEW

2.1 Teaching and Learning Process

Teaching and learning is the interaction or reciprocal relationship between students and teachers and among students in the learning process. The definition of interaction contains elements of giving and receiving (Depdikbud, 1997: 3). According to Sardiman (1990: 25) every learning interaction is characterized by a number of elements, namely: 1) the goals to be achieved; 2) students and teachers; 3) learning materials; 4) the methods used to create teaching and learning situations; and 5) assessment whose function is to determine how far the objectives have been achieved

The teaching and learning process is at the core of the entire educational process, with the teacher as the main role. Teaching and learning is a process that contains a series of actions by the teacher and students on the basis of a reciprocal relationship. The reciprocal relationship between teachers and students is the main condition for the teaching-learning process to take place.

2.2 Principles of Teaching and Learning

Rusyan (1989: 90) points out the principles of teaching and learning that support modern psychology, namely: 1) learning always begins with a problem and takes place as efforts to solve the problem it u; 2) the learning process is always an attempt to solve or understand the relationship between the parts of the problem; and 3) learning is successful when it is realized that a relationship has been found between the elements in the problem in order to obtain instinct or insight. Instincts can arise suddenly or with difficulty.

In order to get good results, in carrying out the teaching and learning process the teacher needs to know and understand the principles of teaching that must be done and realized in learning. The teaching principles according to Rusyan (1989: 91) are as follows.

a) Apperception
b) Motivation

2.3 Influence Components in the Learning Process - Teaching

The teaching and learning process can run effectively if all components that are influential in the teaching and learning process support each other in order to achieve goals. Department of Education (1997: 4) argues that influential components in the process of teaching and learning are: (1) students; (2) curriculum; (3) teacher; (a) method; (5) facilities and infrastructure; and (6) environment.

Curriculum, teachers, methods, facilities and infrastructure is an "input instrumental" that influential in the process of learning to teach. And of all the components that had the effect of the components of the teacher more decisive, because it will manage other components that can improve teaching and learning outcomes.

2.3.1 Learning and Learning Outcomes

According to Winkel in Hasbullah (2000: 8), learned to ar is a mental activity or psychic that takes place in the interaction active between a person with an environment that result in changes in the knowledge, understanding, skills, values and attitudes While it according Slameto, learning is a process for businesses that do a person to obtain a change in behavior that is new in its entirety, as a result of his own experience in interaction with the environment.

According to Purwanto (1990: 40), learning is any change that is relatively persistent in behavior that is relatively permanent. Learning is a process where a person experiences changes in behavior as a result of training. In the definition that implies that the exercise factor plays an important role in behavior change. The formation of behavior as a result of learning has three main characteristics, namely: (a) the behavior is in the form of a potential actual ability, (b) the ability is valid for a relatively long time, and (c) the new ability is obtained through effort

Based on the description above, it can be concluded that the measurement of learning outcomes serves to determine whether the learning indicators have been achieved and to determine the level of mastery of learning materials that must be mastered by students and to determine the effectiveness of the teaching models used in the teaching and learning process.

2.3.2 Learning activity

Learning activities are defined as activities carried out by students in the implementation of the learning process, where students work or play an active role in learning, so that students will gain knowledge, experience, understanding, and other aspects of what they are doing (Hamalik 2003: I72).

Learning is defined as a change in the individual due to experience. These changes are caused by a gradual development in learning (Slavin, 1994). Meanwhile, Sardiman in Purwati (2003) defines learning as an active and conscious effort for a person to make changes towards perfection in himself. This definition implies that learning requires conscious activity because learning means taking actions to achieve a goal.

Furthermore, Benyamin S. Bloom in Subiyanto (1983) states that learning aims to obtain behavioral changes that includes cognitive (knowledge), affective (attitudes), and psychomotor (skills). This change in behavior is the result of learning activities in the form of a response in the form of a reaction to the conditions of the learning environment.

The principle of activity is used in all types of teaching methods, both in-class methods and outside-class teaching methods. It's just that its use is carried out in different forms in accordance with the objectives to be achieved (Hamalik, 2003: 175-176).

2.3.3 Learning model

In terminology, the learning model is defined as a conceptual reference that is used as a plan or pattern by arranging and arranging learning materials in class (Dahlan, 1984: 21).

Meanwhile, Soekamto (1993: 109), the learning model is defined as a conceptual framework, describes a systematic procedure for organizing learning experiences to achieve certain goals, and serves as a teacher's area in planning and implementing teaching and learning activities.

Learning that is designed systematically will be more meaningful for the intellectual development of students. Educational practitioners consider that the learning model that will be applied in the teaching and learning process will be more effective if it is designed with an orientation on how to provide opportunities for students to obtain adequate learning conditions and develop according to their own abilities and activities, without any intervention and emphasis. If seen and analyzed at a glance, we can assume that this view is wrong, but implicitly from this view it can be said that undirected learning may bring significant development in the learning individual (Nur, 2000: 10).

2.3.4 Cooperative Learning

a. Basic Concepts of Cooperative Learning

Theoretically, the basic concept of learning in line with the view of the constructivist learning, especially that expressed by Vigotsky, that students can learn by interacting social, l (cooperative) with peers and adults who are more capable. Cooperative is doing something together by helping each other. Cooperative learning is learning together, helping one another in learning and ensuring that everyone in the group achieves a predetermined goal or task.

Scot *in* Kadir, (2000: 13) cooperative learning is a process that creates a classroom learning environment that allows students to work together in small, heterogeneous groups and do assignments. Watson in Kadir (2000: 13-14) limits cooperative learning as a learning environment where students work together in small groups with different abilities to complete academic tasks. The purpose of forming groups is to provide opportunities for students to be actively involved and thought processes in learning activities.

b. Characteristics and Principles of Cooperative Learning

Characteristics are behaviors that appear and become characters or characters of cooperative learning activities. Ibrahim (2000: 6) says that cooperative learning has certain characteristics that differentiate it from other learning, including: 1) students work in groups cooperatively to complete their learning material; 2) groups formed from students who have high, medium and low abilities; 3) if possible the group members come from different races, cultures, ethnicities, genders; and 4) rewards are more group-oriented than individual.

Furthermore, Ibrahim (2000: 6) said elements on learning cooperation are as follows: (1) students in the group should consider that they live undertaking together; (2) students are responsible for everything in their group having the same goal; (3) students must divide duties and responsibilities equally among group members; (4) students will be subject to evaluation or awarded prizes or awards; (5) students share leadership and they need skills to learn together during the learning process; and (6) students will be asked to individually account for the material handled by the cooperative group.

c. *Pairs Check* Type Cooperative Learning

The peer-to- peer cooperative learning model, *Pairs Cheek, was* developed by Spencer Kagan in 1993. This technique can be used in mathematics, chemistry, Natural Sciences and even in statistical problem solving for all ages of students. The *Pairs check* model provides an opportunity for students to share information with their classmates. Students work in groups in pairs as one person presents the problem and his friend does it, checks the correctness of the answer, exchanges roles, concludes and evaluates.

In the formation of paired groups (Check pairs) students have the opportunity to solve problems quickly and see the mistakes made. This model is applied because the class needs a unity in working together because in general students have problems doing individual assignments. Students who have difficulties often learn more easily than other students who master the skills. Students who mastered the skills were more likely to retain their knowledge after teaching it to others.

Installation in the construction of the structure of group work in pairs: students work in pairs, the first student (A) in the group works on the first problems / questions while the second student (B) acts as a monitor / trainer until student B agrees with the way students work in solving problems, also provide statements and support. Then they switch roles, student B works on the second problem / question while student A acts as a trainer when all the questions have been answered in a group then they are compared and discussed with other groups until they get the right answer. To facilitate management, divide each of the four students into two sets of pairs. Then name one person in each pair of partner A and the other partner B. With this kind of management, each pair of students will find it easier to get another pair in comparing answers. In comparing / checking suitable answers, each pair is given one "Pairs *Check Form"*/task sheet. Each pair working on the problem simultaneously only stops to compare answers and completes a check mark on each line if both pairs cheer for the correct answer (Accessed on 7 June 2009). The steps in the *Pairs Check* type of cooperative learning model are as follows (Timpustaka yustisia, 2007: 175)

1 *Work in pairs*, Form a team in pairs of two students in that pair working on the right questions because all of that will help train.
2 *Coach checks*, if the partner is correct the trainer gives a coupon.
3 *Switch roles*, All partners switch roles and repeat steps I-III
4 Couple checking in, All team pairs come back together and compare answers
5 Teacher's affirmation, the teacher directs the answers / ideas according to the concept.

According to Lie (2007: 46), the paired group has several advantages and disadvantages, including:

- The strengths of the paired group are:
  - Increase paretic Natural Science
  - Perfect for simple tasks
  - More opportunities for individual group member contributions
  - Easier interaction
  - Easier and faster to form
- The disadvantages of the paired group are:
  - Many groups report and need to be monitored
  - Fewer ideas emerged
  - If there is a dispute, there is no arbitrator

III. RESEARCH METHODS

3.1 Types of research

This type of research is Classroom Action Research. This CAR is carried out by applying the *Pairs Check* type of cooperative learning model as an alternative action to improve Natural Sciences learning outcomes for class IX students of SMPN 1 Kendari for the 2018/2019 academic year on the subject matter of straight motion.

3.2 Time and Place of Research

This research was conducted in the odd semester of the 2018/2019 academic year which took place on October 22, 201 8 to November 5, 2018, which took place in class IX of SMPN 1 Kendari.

3.3 Research subject

The subjects in this study were students of class IX of SMPN 1 Kendari who were registered in the 2018/2019 academic year, with the following details:

Table 3.1 Distribution of student data according to gender

No.	Gender	Class IX
1	Man	13
2	Women	15
amount		28

Source: Data from curriculum SMPN1 Kendari

3.4 Research design

As for the design of this research, it can be seen in the picture with design modifications that refer to the PTK Model (PGSM Project Team, 1999: 27)

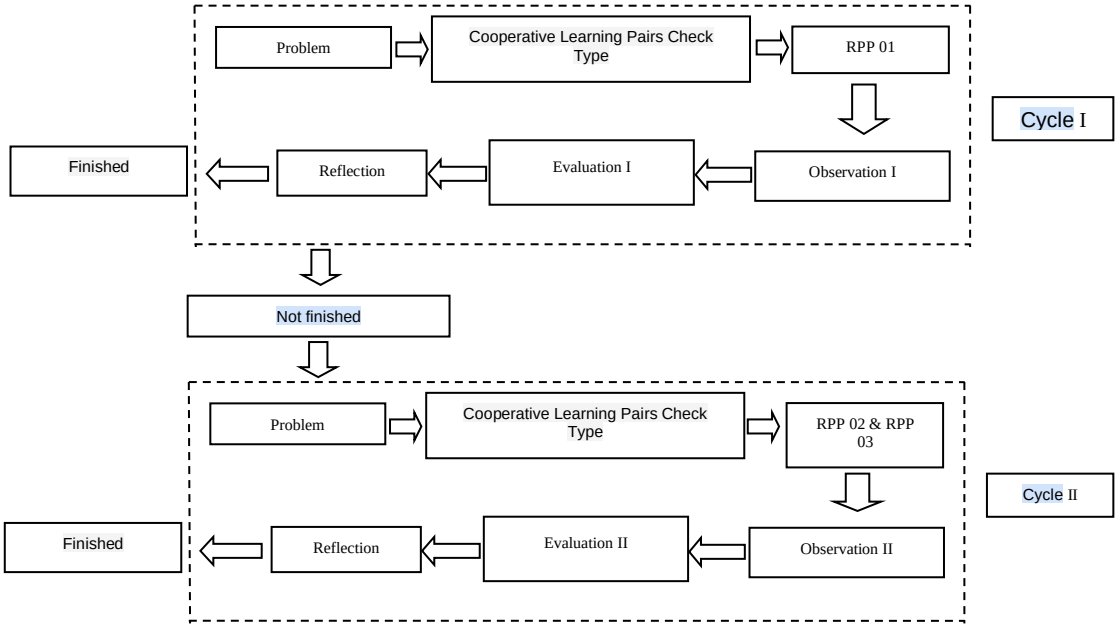


Figure 3.1 Classroom Action Research Model (PGSM Project Trainer Team, 1999: 27)

3.5 Factors Researched

The factors investigated in this study are as follows.

1. Student factors: to see students' abilities in learning Natural Sciences, especially in the subject matter of straight motion.
2. Teacher factors: what was observed was how to design and implement learning with the *Pairs Check* type of cooperative learning model.
3. Learning resource factors: see whether the available learning resources support the ongoing learning process.

3.6 Research procedure

This classroom action research was carried out in 2 (two) cycles which were adjusted to the scope of the material and the time allocation given to teach the subject matter of straight motion. Each cycle is carried out according to the competencies to be achieved and the factors being investigated. In cycle I, the researcher and the teacher made an action plan or alternative solution to problems that arise in classroom teaching. Furthermore, researchers conducted a teaching or action on the subject of research that students IX SMPN 1 Kendari on material staple Motion Straight by applying the model studying of cooperative *Pairs Check* .To monitor the implementation of the action learning process in the classroom, then made observations of the activities of researchers (as a teacher) by the teacher in each cycle and also observing the activities of students by fellow researchers, amounting to 2 people. After the learning process is complete, the researcher evaluates the students by giving a formative test in the form of a test essay, for each cycle. From the results of this formative test analysis, the researchers interpreted the learning outcomes obtained by students. Based on the results of the student activity analysis and formative tests, the researcher then reflected on the learning process, followed by the next action until the standard of learning completeness was reached.

Cycle I

1. Planning

Activities at this stage include:

a) Making a learning implementation plan (RPP 0l) on the main subject matter of motion for the first meeting in accordance with the stages of the *Pairs Check* type cooperative learning model which will be applied to improve Natural Sciences learning outcomes for class I X SMPN 1 Kendari in the 2018/2019 academic year on the subject matter straight motion.

b) The researcher, together with the teacher, conducted a preliminary test on the students who were the research samples to find out the description of the students' initial knowledge on the subject matter of Straight Motion before learning was carried out using the *Pairs Check* type of cooperative learning model.
c) Making worksheets 01 sub subject matter of motion.
d) Making student activity observation sheets and teacher activities in learning activities using the *Pairs Check* type of cooperative learning model.
e) Make an evaluation tool in the form of an essay as much as 5 items to determine student learning outcomes after following the activities study by using the model of learning cooperative *Pairs Check* and make key answers to rules scoring against the instruments used in research.

2. Execution of Actions

The activity at this stage is to carry out learning activities by applying the Pairs Check type of cooperative learning model in learning the subject matter of straight motion in accordance with the learning implementation plan (R PP 01) sub subject matter of motion for the first meeting.

3. Observation and Evaluation

In this phase, carried out observations on the implementation of the action will sheet observational learning that has been designed like the attachment. Observations or observations made are intended to obtain data in the form of student and teacher activities during learning activities, as well as evaluating.

4. Reflection

At this stage, the results obtained in the previous observation and evaluation stages are collected and analyzed. Then it will be seen whether the planned and done it already reflects the results that match the criteria you expected or not, the research will be continued in the next cycle and weakness or deficiency that occurred during the previous cycle is the basis of corrective actions in the second cycle.

Cycle II

1. Planning

Activities at this stage include:

a) Researchers plan Implementation of learning (RPP 02) sub subject matter GLB and uniformly accelerated motion and RPP 03 sub subject matter vertical motion and fell free to encounter a second and a third according to the stages of learning model cooperative type of *Pairs Check* and the results of reflection carried out in cycle I.
b) Making LKS 02 with GLB and GLBB subject matter and LKS 03 sub-subject matter of vertical motion and free fall motion.
c) Creating an evaluation tool in the form of an essay as much as 5 grains of matter to determine student learning outcomes after paretic Natural Sciences in the study by using a model of learning co-operative *Pairs Check* and make key answers as well as the rules of scoring against the instruments used in the study.

2. Execution of Actions

The activity at this stage is to carry out learning activities by applying the Pairs Check type cooperative learning model in learning the subject matter of straight motion in accordance with the learning implementation plan (RPP 02), the main sub-material of GLB and GLBB and RPP 03 sub-subject matter of vertical motion and free fall motion for second and third meeting.

3. Observation and Evaluation

In this stage, observations are carried out on the implementation of the action using a pre-designed learning observation sheet. Observations or observations made are intended to obtain data in the form of student and teacher activities during learning activities, as well as conducting evaluations.

4. Reflection

At this stage, the results of which obtained at the stage of observation and evaluation of previously collected and analyzed. Then it will be seen whether the things planned and done reflect the results that match the expected criteria.

3.7 Data and Data Collection Techniques

1. The data sources were teachers and students.
2. Types of data: The types of data obtained are quantitative data and qualitative data. The data were obtained from learning outcomes tests and observation sheets.
3. Technics basis for taking on Data (i) Data on the condition of the implementation of the model of learning cooperative type of Pairs check drawn using pieces of observation. (ii) Data regarding student learning outcomes is taken using learning outcomes tests.

3.8 Research Instruments

The instrument used in this study was an observation sheet or observation sheet and a Natural Sciences learning outcome test. Observation sheet or observations intended to get the data in the form of activity of students during learning by using a model of cooperative learning *Pairs chceck*. While the Natural Sciences learning outcomes test is used to determine student learning outcomes after being given learning with the *Pairs Check* type of cooperative learning model.

3.9 Data Analysis Techniques

This research is a descriptive study so that the data analysis technique used is in the form of descriptive analysis which is intended to provide an overview of the learning outcomes of Natural Sciences learning taught using the *Pairs Check* type of cooperative learning model. The data analysis steps are as follows:

1. Tabulation of data scores.
2. Determine student learning outcomes.

In determining the value of student learning outcomes, the range of values used for the objective test in this study is 0 to 100 with the formula: (Usman and Setiawati, 2001)

$$\boldsymbol{X_1} = \frac{Spi}{Sm} \text{ x } 100$$

With:
Xi = the value obtained by the *i th* student
Spi = the score obtained by the *i th* student
Sm = the maximum score that may be achieved (ideal score)

3. Determine the class average grade

$$\text{X} = \frac{\sum_{i=1}^{n} Xi}{n}$$

With:
X = Average value
Xi = Score of each student
N = Number of students

4. Determine the standard deviation (SD) with the formula, (Sudjana, 2002: 93)

$$\text{SD} = \sqrt{\frac{\sum_{i=1}^{n}(X_i - X)^2}{n-1}}$$

With:
SD = Standard division
X = the average value of student learning outcomes
X_i = the value of each price x
n = Number of samples

By calculating the average and standard deviation of the scores obtained by students, then the student learning outcomes are categorized as follows:
$X_i \geq X + SD$: High category
$X - SD < X_i < X + SD$: Medium category
$X_i \leq X - SD$: Low category

5. Determine the level of learning completeness attainment

Individually TB is determined using the formula:

$$\% = \frac{np}{n} \text{x } 100\%$$

With:
np = Value achieved by students
n = Ideal value (Uzer, 1993)

The results obtained are compared with the criteria for the success of the action to determine:

(i) Students whose learning outcomes have been completed;
(ii) The percentage of students, whose learning outcomes have been completed, using the formula:

$$\% \textit{ complete} = \frac{\sum TB}{N} x \text{ } 100\%$$

Information:
∑TB= number of students who have completed learning
N = total number of students

$$\text{Classical Value} = \frac{Nilai\ Rata{-}rata}{Nilai\ Ideal} x \text{ } 100\%$$

The results obtained were compared with the criteria for the success of the action, especially regarding the average value of student learning outcomes (Sudjana, 2002: 67).

6. Calculate the average results of student activities with the teacher

$$\text{X} = \frac{\sum_{i=1}^{n} Xi}{n}$$

With:
X = the average score of student activity

X_i = total student score
N = Total items per group

7. Classify the average student activity as follows.
1 ≤ Xi <2 : Poor category
2 ≤ Xi <3 : Fair category
3 ≤ Xi <4 : Good category
Xi = 4 : Very good category (Ramly, 2006: 10)
The explanation of the average student activity category is as follows:

- Very good categories if in one group there are five to six students or all students are able to apply all the units of activity being assessed.
- Good category if in one group there are one to two students who are less able to apply all the assessed activity units.
- The category is not good if in one group there are three to four students who are less able to implement all the assessed activity units.
- The category is not good if in one group there are five to six students who are less able to implement all the assessed activity units.

3.10 Performance Indicators

An indicator of success in the study of this class action is when at least 75 % of students get a score at a low ≥ 65 (KBM from School) A student is said to have achieved learning completeness individually if the student has scored> 65 (KBM) from the school.

IV. RESEARCH RESULTS AND DISCUSSION

4.1 Description of Research Results

4.1.1 Student Activities

Data regarding the mastery of student activity aspects with the implementation of the *Pairs Check* type cooperative learning model for class IX at SMPN 1 Kendari, on the subject matter of Straight Motion can be seen in table 4.1 below. Table 4.1 the average value of the aspects of the *Pairs* type cooperative learning model *Check* on each cycle

The aspects of the *Pairs Check* type cooperative learning model	Cycle I	Cycle II
Listening / paying attention to the teacher's initial explanation.	1.85	2.21
Read and study (textbooks, worksheets)	1.71	2.57
Compact assignments, one student as a coach and one student working on the questions	2	2.78
Active trainers help their partners work on the questions in the LKS	1.42	2.5
Discuss the problems faced in working on the questions	1.57	2.92
The trainer actively checks his show-off work	1.71	3
Give mutual praise to partners if true	1.85	2.78
The entire team mate compare answers	2	2.57
Listening to the teacher in directing answers / ideas According to the concept	2	2.78
Present the results obtained by group representatives	2,2	3.14
Average (X)	1.84	2.72

(Source: attachment 2)

Table 4.1 shows the description of the average value of the aspects of the Pairs Check type of cooperative learning model from cycle I to cycle II during learning with the application of the Pairs Check type of cooperative learning model on the subject matter of Straight Motion. In the table, it can be seen that in cycle I the highest student activity value is the Compact aspect of dividing tasks, one student as a trainer and one student working on the questions, All team pairs compare answers, and listen to the teacher in directing answers / ideas according to the concept, namely value 2. In cycle II, the highest score for student activity is the active trainer to check his partner's work, namely with a value of 3.

For more details, the description of the average value of each aspect of the Pairs Check type of cooperative learning model from cycle I to cycle II can be seen in Figure 4.1 below.

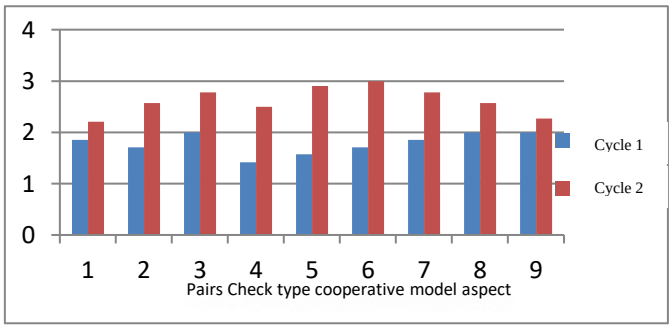


Figure 4.1 Profile of each aspect of the type of Pairs Check cooperative learning model

Image caption 4.1 the aspects of the *Pairs Check* type cooperative learning model

1 = Listening to / paying attention to the teacher's initial explanation.
2 = Reading and studying (textbooks, worksheets).
3 = Compact in dividing the assignment, one student as the trainer and one student working on the questions
4 = the trainer is active in helping his partner work on the questions in the LKS.
5 = Discuss the problems faced in working on the problems
6 = Trainer actively checks his party work.
7 = give each other compliments to partners if true
8 = All team pairs compare answers
9 = Listening to the teacher in directing answers / ideas according to the concept

Furthermore, for the activity average aspects of the *Pairs Check* type cooperative learning model in cycle I and cycle II can be seen in Figure 4.2 below.

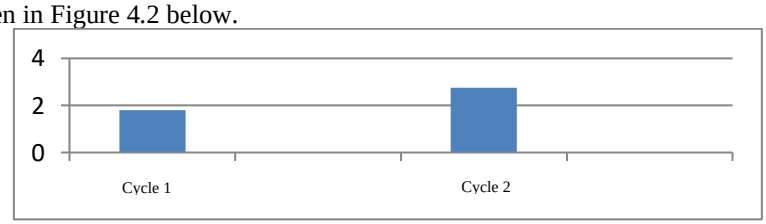


Figure 4.2 Profile of the average activity of the *Pairs* type cooperative learning model *Check*

As for the category of average activity for aspects of the *Pairs Check* type of cooperative learning model in cycle I and cycle II, it has also increased for each aspect, for example the category of student activity for the aspect of Listening to / paying attention to the teacher's initial explanation as follows: Table 4.2 Descriptions of aspects listening to / paying attention to the teacher's initial explanation.

Group	Cycle I		Cycle II			
	Meeting 01	Category	Meeting 02	Meeting 03	Average Score	category
I	3	Good	2	3	2.5	Enough
II	1	Less	2	2	2	Enough
III	2	Enough	3	3	3	Good
IV	1	Less	1	2	1.5	Less
V	2	Enough	2	2	2	Enough
VI	2	Enough	2	3	2.5	Enough
VII	2	Enough	2	2	2	Enough
Average (X)	1.85				2.21	

(Source: attachment 1)

For the category of student activity aspects of the Pairs Check type cooperative learning model in cycle I and cycle II can be seen in appendix 1.

4.1.2 Improved Learning Outcomes

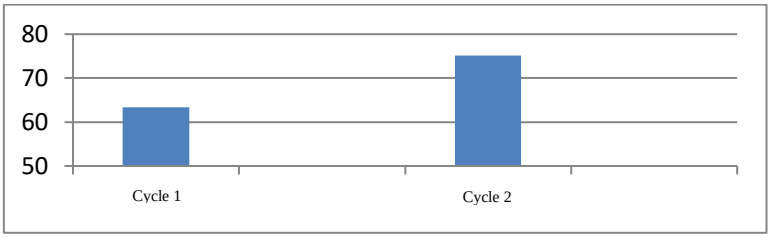
Learning outcomes by apply the *Pairs Check* type cooperative of learning model in the form of giving formative tests at each implementation of each cycle. The description of student learning outcomes can be seen in table 4.2 below. Table 4.2 Data Analysis of Student Learning Outcomes

No.	Type of Evaluation	The value of learning outcomes			
		Average	Minimum	Maximum	SD
1	Cycle I	63.39	50	80	8.71
2	Cycle II	75.17	60	90	8.86

(Source: attachment 3)

Table 4.2 is a description of student learning outcomes during learning with the *Pairs Check* type of cooperative learning model on the subject matter of Straight Motion. In the table, it can be seen that the achievement of the average value of learning outcomes from cycle I to cycle II tends to increase. The average value of student learning outcomes in the first cycle was 63.39. Meanwhile, the average value obtained by students in cycle II was 75.17. For

more details, a description of the average value of student learning outcomes for each cycle can be seen in Figure 4.3 below



The results of learning completeness obtained by students with the *Pairs Check* type cooperative learning model by descriptive analysis can be seen in table 4.l.2 below. Table 4.1.2 Results of Student Learning Completeness

No.	Type of Evaluation	Completeness of Learning Outcomes			
		Completed (ST)		Unfinished (BT)	
		Frequency (F)	Percentage (%)	Frequency (F)	Percentage (%)
1	Cycle I	13	46.43	15	53.57
2	Cycle II	24	85.71	4	14.28

(Source: attachment 2)

To see the percentage of students' completeness in Natural Sciences learning outcomes in cycle I and cycle II can be seen in Figure 4.4 below:

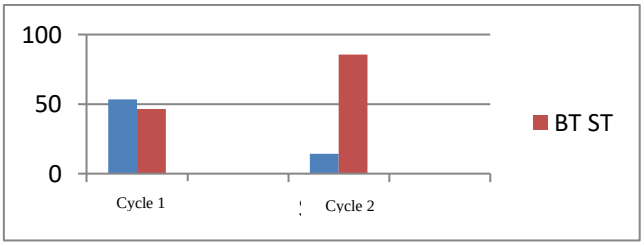


Figure 4.4 Profile of Students' Complete Learning

According to Figure 4.3 and Figure 4.4, we can see that the average value of student learning outcomes from cycle I to cycle II tends to increase. Cycle I the average value of student learning outcomes was 63.39 with a complete percentage of 46.43%, the average value of student learning outcomes in cycle II was 75.17, with a percentage of completeness of 85.7% (having reached completeness in performance indicators). So it can be concluded that the learning outcomes of class IX students of SMPN 1 Kendari can be improved by applying the Pairs Check type of cooperative learning model (table 4.2). This increase is very clearly seen in the average learning outcomes of each cycle which tends to increase.

4.2 Discussion

Based on the first problem about how the implementation of the Pairs Check type cooperative learning model can increase the activity of class IX students at SMPN 1 Kendari on the subject matter of Straight Motion, it can be explained based on the results of observations on observers from cycle I to cycle II which are summarized in table 4.2. From the results of the analysis, the average value of student activity in cycle I to cycle II generally increased.

Based on the problem of how the description of the improvement in student learning outcomes taught by using the Pairs Check type of cooperative learning model on the subject matter of Straight Motion is seen in appendix 2.In the attachment, it can be seen that the average value obtained by students in cycle I to cycle II has also increased. .

Cycle I

From the results descriptive of aspects of the model study cooperative type Pairs check in the first cycle, it appears that the average value of students' skills in mastering the aspects of cooperative learning model type Pairs Check is in the category enough that men have achieved 53, 17 %. This shows that student activity can be improved by applying this model, so that the attitudes of students who are partly still passive can be active with the Pairs Check-type cooperative model.

While the results descriptive of the value of learning outcomes of students in the first cycle, the average value - rata learning outcomes s ISWA at 63.39 which is the category of medium (see appendix 2). Dar i 28 students who took the tests results of study by the end of cycle I, only 13 students or 46.43 %, which has to meet the standards of completeness KBM (≥ 65) and there are 15 students or 53.57 % of students still not finished yet.

From the explanation above, there are many students who have not completed their learning outcomes because in cycle I most student's still experience difficulties in learning, tend to be passive in receiving lessons, because the learning model applied by the teacher is a learning model that is first introduced to students so that students are still need adjustment. This can also be seen from the average student activity in this cycle which is still in the low category of 1.79. The cause of the lack of category in the implementation of the Pairs Check type of cooperative model is that students do not understand and are unified in dividing tasks, besides that one student who acts as a trainer and one

student works on questions does not understand their assignments and students are not active in discussions, pay less attention to explanations teachers in applying this learning model. Moreover, it is supported by the lack of mastery of concepts, especially regarding straight motion which triggers low learning outcomes and the level of student mastery of the *Pairs Check* type of cooperative learning model is still not maximal, only a few pairs of students are motivated to learn in groups, especially students with high abilities, while students with low abilities tend to be passive in the group.

Besides that, the teacher's behavior in managing learning also affects the implementation of the Pairs Check type of cooperative learning model in this first cycle, where the teacher has not mastered several aspects in the implementation of the Pairs Check type of cooperative learning model including:

1) Giving motivation that does not attract the attention of students, where the teacher provides motivation by asking only questions without explaining how to answer the question.
2) The teacher conveys the learning objectives but it is not clear.
3) Less focus on all students to think about and solve problems in the worksheets using the *Pairs Check* type of cooperative learning model.
4) Lack of providing solidification of understanding to students, namely the teacher only explains the answers from the results of the discussion without connecting them to other concepts related to everyday life.

By looking at some of the short comings that shows that the implementation of cooperative learning model type *Pairs Check*- in cycle I still have not produced what was expected. Wherein the learning model cooperative *Pairs Check* these students are required to gain experience of the settlement of the problems associated with the material subject motion in everyday life, and making inferences about problems that have been completed so that the material being taught does not become rote alone.

To address the low level of student mastery of the aspects of the aspects of cooperative learning model tip e *Pairs Check* of the learning outcomes that then of reflection conducted by researchers with the teachers of subjects NATURAL SCIENCES agreed to fix the weaknesses the first cycle so that the implementation of cycle II is better with improvements as follows:

1) The teacher should provide motivation at the beginning of the lesson by preparing an interesting type of activity and it is shown directly through a short experiment that the teacher conducts in front of the class.
2) The teacher should clearly convey the learning objectives, so that students will understand what they really need to do in experimental activities.
3) The teacher should provide problems that are relevant to the material so that it makes it easier for students to understand the concept.
4) The teacher should connect the material being taught with everyday life which allows students to be more open to new experiences so that the material received is not just memorized.

Cycle II

Based on the results of descriptive analysis of aspects - aspects of the model of cooperative learning *Pairs Check*- in cycle II, it can be seen that the value of the average ability of students in mastering aspects of model of learning cooperative *Pairs check* on the second cycle shows the increase were significant as shown in Table 4.1 which is in the sufficient category with an average value of 2.67.

In addition, it can also be seen that every aspect of the *Pairs Check* type of cooperative learning model has increased, especially in the aspect of the *active trainer checking his partner's work* and *discussing the problems faced in working on the questions* have shown a sufficient category value with the average score of students in this aspect respectively. Amounted 3 and 2.67. Besides that, an increase was seen in other aspects of the Pairs Check type of cooperative learning model such as the Compact aspect of dividing tasks, one student as a trainer and one student working on the questions increased from 2 to 2.78 and aspects of giving praise to partners if true also increased from 1 , 85 to 2.78.

Meanwhile, from the results of descriptive analysis for student Natural Sciences learning outcomes on the subject matter of Straight Motion, it can be explained that in cycle II, the average value of student learning outcomes also increased to 75.17 which is in the high category (See Appendix 2) with a maximum value of 90. And a minimum score of 60 students. Of the 28 students who took the learning outcomes test at the end of cycle II, 85.7% (Appendix 2) or 24 students had obtained scores that met the teaching and learning activities (≥ 65) and only 14.28% or 4 students remained. Whose learning outcomes are not yet complete.

Such increase proves that the students have started to get used to following the learning process implemented by teachers is model of cooperative learning Pairs Check. Students who have not completed their studies are still given special attention and more guidance. In groups, students who have not yet completed are directed to be more active and the teacher is increasingly solid in mastering aspects of the management of the Pairs Check type of cooperative learning model. In addition, the teacher also provides reinforcement in the form of examples of applying concepts in everyday life and rewards for groups with the highest learning outcomes. In other words, the teacher has begun to be able to get rid of the habit of applying traditional or monotonous learning that has been applied so far.

Thus, the answer to the research problem has been revealed, namely the application of the Pairs Check type cooperative learning model has succeeded in increasing student activity as well as improving student learning outcomes in Natural Sciences learning, especially on the subject matter of Straight Motion Fluid. This affirmation is also an answer to the action hypothesis. This is in accordance with the theory put forward by Lie (2007: 46) that the Pairs

Check type of cooperative learning model can increase paretic Natural Sciences, interaction and student learning outcomes, because in training students are encouraged to paretic Natural Sciences actively and efficiently in learning.

V. CONCLUSIONS AND SUGGESTIONS

4.1 Conclusion

Based on the formulation of the problem and the results of the analysis of the research data used, it can be concluded as follows:

1. Student activities with the application of the Pairs Check type cooperative learning model in general in each cycle tend to increase for the better. This can be seen from the average acquisition of aspects of the *Pairs Check* type of cooperative learning model of students in the first cycle of 63.39 which are in the medium category, in the second cycle of 75.17 which are in the high category.
2. Natural Sciences learning outcomes for grade IX at SMPN 1 Kendari on the subject matter of Straight Motion tends to increase. This is indicated by the mean score of students in the first cycle of 63.39 with a standard deviation of 8.71 or an achievement level of 63.39%, in the second cycle the average value of students was 75.17 with a standard deviation of 8.86. Or an achievement level of 75.17%.

4.2 Suggestion

Based on the results obtained in this study, several suggestions are proposed as follows: Schools must provide sufficient freedom for teachers to do PTK, collaborate with other teachers, can be.

REFERENCES

Anonim. 1999. *Penelitian Tindakan Kelas; Bahan Pelatihan Dosen LPTK danGuru Sekolah Menengah*. Jakarta : TIM Pelatih Proyek PGSM.

Arikunto, 5.,2002. *Prosedur Penelitian*. Jakarta: Rineka Cipta.

--------- 2005. *Dasor-Dasar Evaluasi Pendidikan* Jakarta: Rineka Cipta.

Andriyani. 2002. *Pengoruh Peneropan Strategi Mengajar Model CUS (ChildrenLearning In Natural Sciences) terhadap Prestasi Belajar Siswa*. Skripsi 51 UPIBandung: Tidak diterbitkan.

Dahlan, M.D., 1984. *Model-model Mengajar. Bandung:* CV. Diponegoro

Depdikbud, 1997. *Kurikulum Sekolah Merungah Umum. Petunjuk PelaksanaanProses Belajar Mengajar*. Jakarta: Depdikbud.

Dimyati & Mujiono. 2006. *Teori-Teori Belajar*. Jakarta: Erlangga.

Hasbullah, L. 2000. *Penerapan Pengajaron Pemecahan Masolah UntukMeningkatkan Hasil Belajar Matematika Siswa Madrasah Atiyah*.Thesis PS Universitas Pendidikan Indonesia Bandng: Tidak diterbitkan.

Hamalih O. 2003. *Proses Belajar Mengajar*. Jakarta: PT. Bumi Akasara.

Indrawati. 2000. *Model-Model Pembelajaran NATURAL SCIENCES*. Jakarta: Depdikbud - Dikti.

Ibrahim, M., dkk, 2000. *Pembelajaran Kooperatif*, Universitas Negeri Surabaya:University Press.

Kadir, A. 2000. *Penerapan Model Cooperatif Learning Tipe STAD.*Bandung:ITB.

Lis, A,. 2007. *Cooperative Learning*. Jakarta: Grasindo.

Nur, M., 2000. *Model-Model Pembelajaran*. Surabaya: University Press.UNESA

Purwanto. 1990. *Dasar-Dasar Evaluosi Pendidikan*. Jakarta: Bumi Aksara.

Purwanti, W.C.2003. *Pembelajaran Kooperattf Model STAD Dapat Meningkatkan Hasil Belajar MNATURAL SCIENCES*. JICA. Seminar Proceeding. National Seminar on Natural Sciences and Mathematics Education. Bandung:UPI.

Ramly, Dr., M.Pd., 2006. *Metodologi Penelitian Pendidikan*. Unhalu: .

Rusyan, ATT, dkk., 1989. *Pendekntan daalm Proses Belajar Mengajor*. Bandung: Remaja Rosda Karya.

Sudjana. 2002. *Metoda Statistika*. Bandung: Tarsito.

Soekamto. 1993. *Prinsip Belajar dan Pembelajaran*. Jakarta: University Press IKIP-Jakarta.

Sardiman. 1990. *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: CV Rajawali.

Subiyanto. 1988. *Evaluasi Pendidiknn llmu Pengetahuan Alam*. lakarta : DIKTI.

Slavin, R,E. 1994. *Cooperative Learning. Massachusetts* : A Simon and Schuster Company.

Suherman, 2008. *Model Belajar dan Pembelajaran Berorientasi Kompetensi Siswa*, (Online) http:I/209.85.175.104/search?q=cache:v4JagWmwS-kJ:educare, Diakses 23 Maret 2009).

Tim Pustaka Yustisia, 2007.

Usman, M.U., 1990. Menjadi Guru yang Profesional Bandung: Remaja RosdaKarya

Usman& Setiawan. 2001. Statistika. Bandung: Remaja Rosdakarya.

Uzer, U., (1993). Upaya Optimalisasi Kegiatan Belajar Mengajar. Bandung: Remaja Rosdakarya.