

# Application of Cooperative Learning Model Type Think Pair Share for Improved Communication

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**Abstract**— This study starts from the low ability students' mathematical communication with the root cause of learning methods that teachers use less Variatif so that learning does not involve the entire student cause learning does not memorable and meaningful for students. Research aims to improve students' communication skills through the application of mathematical models of cooperative learning *Think Pair Share*. This research is a classroom action research. Results of this study indicate that learning through cooperative learning model *Think Pair Share* on the subject of trigonometry can improve students' mathematical communication skills. Before being the act of learning through cooperative learning model type *Think Pair Share*, average initial test results is 47,79 to 18,42% in classical completeness. Once given the act of learning through cooperative learning model type *Think Pair Share* (TPS), the average test result communication skills in math is the average results of mathematical communication skills III is 80,53 to 86,84% in classical completeness. From the results of the study concluded that an increase in students' mathematical communication skills through the application of cooperative learning model *Think Pair Share* on Trigonometry.

**Keywords**— *cooperative learning model Think Pair Share (TPS), Mathematical communication skills*

## I. INTRODUCTION

In the process of teaching and learning teachers and students are two subjects that can not be separated. In the learning activities of teachers trying to convey something called a message. Conversely, in the learning activities of students trying to get something. The message or something can be knowledge, insight, skills such as art, morals and religion.

Implementation of learning in the classroom is one of the main tasks of teachers and learning can be interpreted as activities intended to students teach. But this learning process does not always run smoothly because there are still some problems that are often found by teachers or students. Like the results of class observations conducted by researchers, found there are some problems that occur when the process of learning mathematics takes place.

In the learning that has been going on for this, the teacher explains orally, while the students are asked to listen in an orderly manner, then the students are told to memorize many concepts, the teacher fears the time specified in the curriculum is not appropriate. It makes students become

confined within the classroom and will narrow their thinking patterns. Especially in the learning of mathematics students are only taught by imagining the examples without being shown any real evidence. “pengetahuan akan semakin abstrak apabila hanya disampaikan melalui bahasa verbal. Hal ini memungkinkan terjadinya verbalisme, artinya siswa hanya mengetahui tentang kata tanpa mengetahui makna yang terkandung dalam kata tersebut [3]”. It makes students become passive when learning so that their communication skills are low.

The word communication comes from the Latin word is *communicare* which means the same. Same here means is the same in terms of understanding and opinion between communicators and communicants.

Ada dua bentuk komunikasi yang *pertama*, yaitu *komunikasi lisan / komunikasi verbal*, komunikasi ini disampaikan secara lisan atau verbal melalui apa yang diucapkan dari mulut atau dikatakan, dan bagaimana mengatakannya. Bentuk komunikasi *kedua* yaitu *komunikasi nonlisan / nonverbal*, komunikasi ini menggunakan isyarat (*gestures*), gerak-gerak (*movement*), sesuatu barang, cara berpakaian, atau sesuatu yang dapat menunjukkan perasaan (*expressions*) pada waktu yang sangat penting [3].

Communication can be divided into three forms, namely: personal communication, group communication, and mass communication [4].

Teaching and learning process is essentially a process of communication, where the teacher acts as an introduction to messages and students as the recipient of the message. Messages sent by teachers in the form of content / subject matter that is poured into the symbols of communication both verbal (words and writing) and non verbal, this process is called encoding. The interpretation of these communication symbols by students is called decoding.

However, the communication process can experience obstacles, meaning that not always messages delivered by the sender of the message easily received by the recipient of the message. In fact there are times when received messages do not match the message delivered. This is called communication error.

Komunikasi dimaknai sebagai proses penyampaian pesan dari pengirim pesan kepada penerima pesan melalui saluran tertentu dengan tujuan tertentu [1]. The success of the teaching and learning program depends on the

communication used by the teacher, ie, when the teacher interacts with the students. There are three commonly used forms of communication: linear communication, relational communication and convergent communication.

In addition, mathematics is also a frightening specter for students because they are only asked to memorize the concept and imagine something abstract, so that not a few students who think that math is a very difficult and tedious lesson. Mathematics is a language that is not easy to understand just by looking and reading it because in mathematics itself there are many symbols that each symbol has a certain meaning.

From the observations can be drawn a CONCLUSION that is for students to learn mathematics is less fun and boring and how to teach teachers less varied while the math teacher thought that there are still many passive students because of their low communication skills. In this problem the researcher offers a solution that can be used to solve the problems faced by mathematics teachers and students of senior high school CIPTA Simpang Dolok is by applying cooperative learning model.

In general cooperative learning is used to improve students' thinking and communication skills and to encourage student involvement in lessons. Think Pair Share (TPS) is one of the cooperative learning model which is relatively easy to be applied in class because TPS is a type of cooperative learning designed to influence the pattern of student interaction. TPS is often referred to as pairs of thinking technics. "Think Pair Share merupakan jenis pembelajaran kooperatif yang dirancang untuk mempengaruhi pola interaksi serta optimalisasi partisipasi siswa" [2].

This opinion is also supported by [1] in the mathematical communication book is "model pembelajaran kooperatif tipe Think Pair Share (saling bertukar pikiran secara berpasangan) merupakan struktur pembelajaran kooperatif yang efektif untuk meningkatkan daya pikir siswa". This is possible because the procedure has been arranged so that it can give students more time to think, and respond as one way that can arouse the form of student participation.

## II. METHODS

Model pembelajaran kooperatif tipe think pair share ini sebaiknya menggunakan classroom action research model Lewin yang terdiri dari empat tahap, yaitu perencanaan, tindakan, observasi dan refleksi [1]. Classroom Action Research is done with the aim of improving the quality of classroom learning practices. This study aims to improve students' mathematical communication skills and reveal the obstacles or difficulties experienced by students in trigonometric learning using cooperative learning model of TPS type (Think Pair Share). In accordance with this type of research is class action research, then this research has several stages which is a cycle. Each cycle is implemented in accordance with the changes to be achieved.



Picture I: Classroom action research design

## III. RESULTS AND DISCUSSION

### Test Results Initial communication ability

This initial test aims to determine the initial ability of students also to know the images of difficulties experienced by students in solving trigonometric problems. The errors found are grouped according to the item and the type of error. From the initial test the average grade of students is 47,79 then it can not be said complete because the percentage of classical mastery of 18,42% where classical completeness criteria  $\geq 85\%$ .

### Cycle Research Results I

Many students who achieve completeness in the first cycle is 14 people or 36,85% while not complete as many as 24 students or the equivalent of 63,16%. The average student score in cycle I is 59,47. A less encouraging thing is that there are still students who get a score of 20, while there are also students who get a score of 100. Judging from student answer sheets on mathematical ability test result of student cycle I, there seems to be student difficulties in the use of rules applicable in comparison trigonometry, students who correctly answer only 14 students. Although many of the students answered, they were unable to provide a complete and accurate answer.

Considering that the steps of teachers in applying cooperative learning model of Think Pair Share type and mathematical communication of students in cycle I, especially at the last few meetings are still in the criteria of less or low and the percentage of the achievement of classical stillness is 36,85%, hence decided to continue action in the second cycle.

### Cycle Research Result II

Many students who achieve completeness in cycle II is 24 people or 63,15% while not complete as many as 14 students or equivalent to 36,85%. The average score of students in cycle II is 73,16. One thing that has not been encouraging although seen from the average cycle II there is an increase

from cycle I of 13,69%, and so also seen that the minimum score in cycle I increased by 20 on cycle II. At the third meeting, the average score of observation result of the implementation of Think Pair Share type cooperative learning model was 2,4 at the fourth meeting 2,6. Judging from the student answer sheet on the results of the students 'mathematical communication skills test cycle II, it seems that students' difficulties in answering the story of students have begun to understand and understand. While the average score of students' communication skills, based on observation is always an increase in each meeting.

Considering that the steps of teachers in applying cooperative learning model of Think Pair Share type and mathematical communication of students in cycle II, especially at the last few meetings are still in the criteria of less or low and the percentage of classical completeness achievement is still 63,15%, it is decided to continue the action in the third cycle.

### Cycle Research Result III

Many students who achieve completeness in cycle III is 33 people or 86,84% while the unfinished as many as 5 students or equivalent to 13,16%. The average score of students in cycle III is 80,53. An exciting thing because it looks from the average cycle III there is an increase from cycle II of 7,37%. At the fifth meeting, the average observation score of the implementation steps of the Think Pair Share cooperative learning model is 3,2 at the second meeting 4,0. Judging from the answer sheet of students on the test results of students 'mathematical communication skills cycle III, it seems that students' difficulties in answering the story has been resolved, the students have understood and understand the questions in the form of stories. While the average score of students' communication skills, based on observation is always an increase in each meeting.

Considering that the steps of teachers in applying cooperative learning model of Think Pair Share type and student communication ability in cycle III, especially at the last meeting have reached good criteria, and the percentage of achievement of classical has reached 86,84% it is decided not to continue to cycle following.

The learning process in the presentation of trigonometric material in terms of two things, namely the implementation of cooperative learning model type Think Pair Share and students' mathematical communication skills.

#### I. Teacher steps in applying cooperative learning model Think Pair Share type.

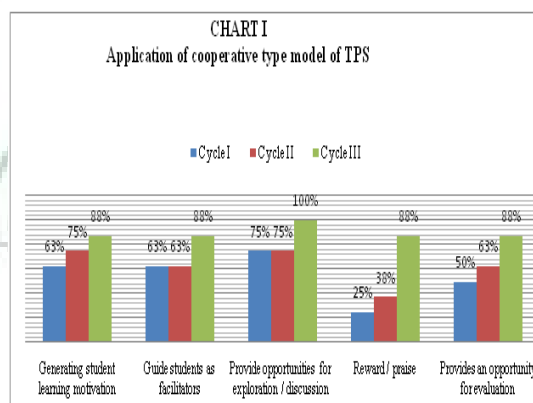
Improvement of observation result in the implementation of cooperative learning model type Think Pair Share in senior high school Cipta Simpang Dolok can be seen based on observation result. In the first cycle average score of implementation of cooperative learning model type of TPS is 2,2 or 55,0%, when compared with the criteria for the success rate of the action, it turns out that the average of observation score of the implementation of cooperative learning model type Think Pair Share is 55,0% is in less criteria, while in cycle II, the average of observation score of the

implementation of cooperative learning model type Think Pair Share is 2,5 or 62,5%, which when compared with the criterion of success rate of action, hence it turns out the average of observation score implementation step model of cooperative learning type Think Pair Share equal to 62,5% is in criteria still less. while in cycle III, the average of observation score of the implementation of cooperative learning model type Think Pair Share is 3,6 or 90,0%, which when compared with the criteria of success rate of action, it turns out the average score observation step model cooperative learning type Think Pair Share of 90,0% is on good criterion.

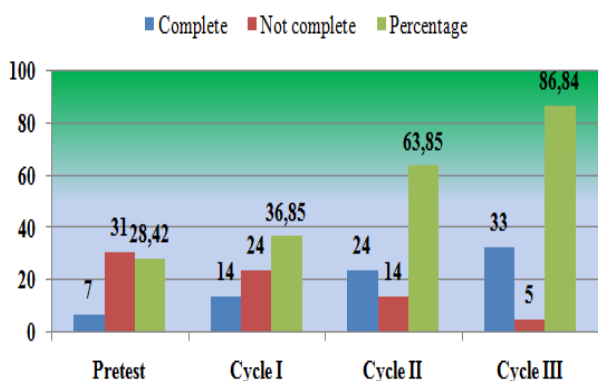
#### II. Student Mathematical Communication Skill

The improvement of student's mathematical communication skills in the presentation of trigonometric material through the application of cooperative learning model Think Pair Share type in senior high school Cipta Simpang Dolok is based on the observation result. In cycle I average score of students' mathematical communication ability is 2,4 or 60,4%, when compared with the criteria of success rate of action, it turns out the average score of communication ability of students is 60,4% is in less criterion, while in cycle II, Mathematical communication is 2,6 or 64,6%, which, when compared to the criteria of success rate of action, it turns out the average score of students' communication skills of 64,6%, is in less criteria. While in cycle III, the average score of communication ability of matemaik is 3,4 or 85,4%, which when compared with the criterion of success rate of action, hence the average score of communication ability of student equal to 85,4%, is in good criterion.

Based on observation result the steps of teachers in applying the model of cooperative learning type Think Pair Share and students' mathematical communication ability that turns each increase from cycle I, II and to cycle III, it can be concluded that the results of observation implementation of cooperative learning model type Think Pair Share and mathematical communication ability of students in the presentation of trigonometric material through the implementation of cooperative learning model Think Pair Share type in senior high school Cipta Simpang Dolok can be improved.



**CHART II**  
Result of studen's mathematical communication skills



#### IV. CONCLUSION

Based on the results of research and evaluation result of each cycle action from this research, the data obtained some research CONCLUSIONS as the following:

1. The learning process in serving the comparison of trigonometry in grade X-B senior high school Cipta Simpang Dolok can be improved through applying cooperative learning model of think pair share type. Improvement of this process in terms of two things, namely:
2. In the first cycle I observed the results of the observations of the steps of teachers in applying cooperative learning model Think Pair Share type is 2,2 or 55,0%, which according to the criteria of the success rate of action is on the criteria less, while in cycle II, step teacher in applying cooperative learning model type Think Pair Share is 2,5 or 62,5%, which according to criterion of success level of action is on less criteria. And in cycle III, the average of observation result of teacher steps in applying cooperative learning model of Think Pair Share type is 3,6 or 90,0%, which according to criterion of success level of action is on good criterion.
3. In cycle I mean score of student communication ability is 2,4 or 60,4%, which according to criterion of success level of action is at less criterion, while in cycle II, average score of student communication ability is 2,6 or 64,6%, which according to the criteria the success rate of the action is on the less criteria. And in the third cycle, the average score of students' communication skills is 3,4 or 85,4%, which according to the criteria of success rate of action is in good criterion.
4. The result of students' mathematical communication ability in serving the comparison of trigonometry in class X-B senior high school Cipta Simpang Dolok can be improved through applying cooperative learning model of think pair share type. Improvement of students' mathematical communication skills can be reviewed from two things, namely:

5. The student communication skill test of cycle I gives the average score of 59,47 students while the test result of student learning cycle II gives the average student score 73,16. And test result of student learning cycle III give student average score 80,53.
6. Percentage of students who complete in cycle I is 36,85%, while the percentage of students who complete in cycle II is 63,15%. And the percentage of students who complete in cycle III is 86,84%.

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