

**IMPROVING HARD WORK AND STUDENTS ACHIEVEMENT IN
MATHEMATICS LEARNING BY USING CONTEXTUAL TEACHING
AND LEARNING (CTL) TO GRADE VII A OF SMP AL-ISLAM 1
SURAKARTA FOR 2012/2013 ACADEMIC YEAR**



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By:

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APPROVAL

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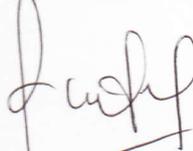
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Pemmbimbing

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SURAKARTA FOR 2012/2013 ACADEMIC YEAR**

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ABSTRACT

The objective of this research is to improve the hard work and student's achievement in learning mathematics grade VII A of SMP Al-Islam 1 Surakarta. This is an action research with the subject is the students grade VII A of SMP Al-Islam 1 Surakarta academic year 2012/2013 with the number of students is 24 students. The data is obtained from observation, field notes, documentation, and test. Technique of data analysis in this research includes data collection, data presentation, and data verification. The result of research are: 1) the hard work of students in learning mathematics are increase, include: a) before the treatment are given, there are 14 students (58,33%) who demonstrate seriousness in solve the problems, after the treatment there are 19 students (90,48%), b) before the treatment are given, there are 6 students (25%) who complete the problems on time, after the treatment there are 17 students (80,96%), c) before the treatment are given, there are 5 students (20,83%) who do not give up to solve the problems, after the treatment there are 18 students (85.71%), d) before the treatment are given, there are 5 (20,83%) students who solve the problem carefully and accurately, after the treatment there are 15 students (71.43%). 2) the students' achievement increase, it can be shown by: before the treatment are given, there are 5 students (20,83%) who scored above the passing grade, after the treatment there are 17 students (80,96%) who scored above the passing grade. So, it can be concluded that CTL strategy can improving the hard work and students' achievement in learning mathematics.

Key words : CTL, students' hard work, students' achievement.

INTRODUCTION

Hard work in study mathematics is important thing. By having hard work character, the students will solve the mathematics problems given by the teacher easily and it will effect to the student's achievement. As we know, students

achievement is one of indicator to evaluate the learning process (success or not). By looking at students' achievement, stakeholders know the quality of education system that applied in a school. Mustari (2011: 51) said that hard work is the behavior that indicates serious efforts to overcome all of obstacles to solve the problems as well as possible. Indicators of hard work were observed in this study are: a) demonstrating seriousness in solve the problem, b) Completing the problems on time, c) Never giving up to solve the problems, d) solving the problem carefully and accurately.

Based on the observation in mathematics learning process grade VII A of Al-Islam Junior High School of Surakarta at Thursday, 10 January 2012, the student's hard work in study mathematics are still low. It is shown by: a) 14 students (58,33%) who demonstrate seriousness in solve the problem, b) 6 students (25%) who complete the task on time, c) 5 students (20,83%) who don't give up to solve the problems, d) 5 students (20,83%) who solve the problem carefully and accurately.

On the other hand, student's achievements are also low. Student's achievement is behavioral change occur after the learning process based on the objectives of education (Purwanto, 2009:44). Based on the result of the test, just 5 students (20,83%) who scored above the passing grade. In SMP Al-Islam 1 Surakarta, the passing grade of mathematics is 70.

The reason of that fact comes from several factors. They are teacher, students, learning tools, and environment. Among all of the factors mentioned, the teacher is the main factor that can affect to the hard work and student achievements. Teachers should be able to making class feel comfortable, utilizing instructional media maximally, using interest and variation learning strategies to stimulate the hard work of students in learning mathematics. Teachers also must be able to relate mathematics problems to real life, so that students are aware to the usefulness of mathematics in daily lives.

Based on the problems above, researcher try to do an effort to improve the hard work and student's achievement, that is conducted by using Contextual Teaching and Learning (CTL) strategy. CTL is a learning concept to helps teacher

to make relation between the materials to real-world situations, so that the students are able to make connections between the knowledge which are learned to its application in daily lives. The special thing of CTL is real word learning. Prioritize real experience, high-level thinking, student-centered active, critical and creative, meaningful knowledge, and the activity is not teaching but learning. The activities of CTL are to educate the students as a human being, solve the problems, and the students achievements are not just from the result of the written test.

Contextual Teaching and Learning (CTL) is a learning concept that helps teachers relate the learning materials with real-world situations and encourage students to make the connection between the problems that are given in their learning with the application in their lives as member of families and communities (SyaifulSagala, 2006: 87). Contextual learning has seven main components, i.e.: constructivism, questioning, inquiry, learning community, modeling, reflection, and authentic assessment. To achieve the expected learning objectives using CTL strategy, then use the steps of CTL orderly. According to Supinah and TitikSutanti (2010), there are five steps in CTL application. These steps are: 1) Orientating the students to the problem situation, 2) Organizing the students to study, 3) Guiding inquiry both individual and group, 4) Developing and presenting the result of discussion, 5) Analyzing and evaluating problem solving process.

By implementing CTL strategy, the students understand about the objectives of learning mathematics, its benefits and how to achieve it. So, the students' hard work and achievements in learning mathematics are increases accordance to the expected goals.

Problem Formulation

Based on the problems above, the writer formulates the research problems as the following:

1. Does the students' hard works of grade VII A SMP Al-Islam 1 Surakarta in even semester for academic year 2012/2013 increase by using CTL strategy in mathematics learning?

2. Does the students' achievements of grade VII A SMP Al-Islam 1 Surakarta in even semester for academic year 2012/2013 increase by using CTL strategy in mathematics learning?

Objectives of the Study

Based on the problem statement, the general objective of the research is to improve the hard work and student's achievement in learning mathematics. The specific objectives of this research are: a) To improve the hard work of students in learning mathematics grade VII A SMP Al-Islam 1 Surakarta by using CTL strategy; b) To improve student's achievement in learning mathematics grade VII A SMP Al-Islam 1 Surakarta by using CTL strategy.

RESEARCH METHOD

This research is a qualitative research type Classroom Action Research (CAR). The research was conducted through a process of collaboration between mathematics teacher and researcher in improving students' hard work and achievement in learning mathematics by using CTL strategy with the steps are: a) planning, b) acting, c) observing, and d) reflecting.

This research was conducted in grade VII A of SMP Al-Islam 1 Surakarta at even semester for academic year 2012/2013. SMP Al-Islam 1 Surakarta is located on Jl. MuhYamin no. 125, Tipes, Serengan, Surakarta. and conducted during 6 months, from October 2012 till March 2013. The subjects of this research are the students of grade VII A in even semester for academic year 2012/2013 and the mathematics teacher of SMP Al-Islam 1 Surakarta. The numbers of the students in this class are 24, consist of 10 boys and 14 girls. While, the mathematics teacher as a research subject is Miss Wulan Setyaningsih, S.Si.

Techniques of Collecting Data

For this research, researcher using 4 kinds of Techniques of Collecting Data, they are:

a. Observation

Observation is monitoring directly and accurately to the phenomena occurring the study. Observations made on the students and teachers of mathematics class VII A of SMP Al-Islam 1 Surakarta. In this study, observations are used to detect the student's behavior changes, these are hard work and student's achievements by using CTL strategy. This observation is divided into two parts, before and after treatment observation.

b. Documentation

Documents in this study is obtained by looking at the books, archives or records relating to the data of SMP Al-Islam 1 Surakarta and identification of class VII A like the names of students, the number of students, student's achievements at school and also photographs at research process in SMP Al-Islam 1 Surakarta.

c. Field Notes

Field notes is used to make a note about important events that occur during the process of learning. Field note is consists of student activity, teacher activity, and the conclusion of learning process based on the teacher and student activity.

d. Test

Test is used to obtain data on the level of students' understanding about the material. This test is arranged with the teacher partners, with the essay form. This test is performed at the end of each learning cycle.

Techniques of Data Analysis and Checking Data Validity

1) Data reduction

Data have been obtained in the field is quite a lot, it should be noted carefully and in detail. So that it need to be analyzed by reducing the data. Reduce mean summarize, choosing subject matter, focusing on the important things, look for themes and patterns. In reducing the data, each researcher will

be guided by the objectives to be achieved, which is about hard work and achievement of students during the learning process takes place.

2) Display data

In this step of study, researcher tries to compile relevant data so that it can be an information that can be concluded and has specific meanings. By showing the data and making a relationship between the variables, researcher understands what happens and what needs to be followed up to achieve the research objectives. Milles and Huberman (Sugiyono, 2012 : 95) said that by looking at displays help us to understand what is happening and to do something-further analysis or caution on that understanding.

3) Verification of data

Verification of data or inferences is done by gradually acquire a high degree of confidence. Thus, data analyze is conducted since the first treatment implemented. Data verification is performed on every treatment then all of treatments are combined to make final conclusion.

Technique of checking data validity is done by triangulation. Triangulation is a technique that utilizes something else out of the data for checking or as a comparison to the data obtained. This research is use triangulation of method and triangulation of data sources. Triangulation of method is done by comparing information or data obtained by observation, documentation, and tests. Triangulation of data sources is checking the data result of observation, test and documentation.

RESULT AND DISCUSSION

Based on the result of initial dialogue and observation, it can be concluded that the level of hard work and student's achievements of SMP Al-Islam 1

Surakarta grade VII A are low. Based on the observation, the students who show hard work in learning mathematics are : a) Demonstrateseriousnessin learning process are 14 students (58,33%), b) Complete the problems on time are 6 students(25%), c) Not give up to solve the problems 5 students (20,83%), d) Solving the problem carefully and accurately are 5 students (20,83%). Based on the test, it's obtained there are 5 students (20,83%) who scored above the passing grade.

Research of learning by CTL is one of effort to improve the students' hard work and achievement. This research conducted in two cycle, with for each cycle there are two meetings.

1. Implementation CTL cycle I

Implementation of research action in grade VII A of SMP al-Islam 1 Surakarta at first cycle, with its basic competence is to determine the relation between two lines, size and kind of angles done in two meetings. The first meeting was held on Saturday, 26 January 2013 at 08:10 to 09:30 and the second meeting was held on Monday, 28 January 2013 at 14:20 to 16:00.

At the first meeting, the learning process begins with praying, checking attendance, and checking students' readiness to learn. The teacher divides the students into 5 groups with each group consist of 4-5 childrens. Each group is given some problems to be discussed for 20 minutes. Then, the students present the result of their discussion in front of the class, while the other groups give confirmation about the results of presentation. Teachers act as facilitators and provide reinforcement to the presentation. Furthermore, the students together with the teacher make general conclusions about the material being taught. At the end of the second meeting, we evaluate the students' understanding about the relation of two lines, the measure and kind of angles by giving 4 questions with its form are essay in 20 minutes.

The result of students' hard work and achievement in learning mathematics by using CTL strategy at first cycle is: 16 students(69.57%) are demonstratingseriousnessin learning process,11 students(47.83%) are completing the problems on time, 13 students(56.52%)aren't giving up to

solve the problems, 8 students(34.78%) are solving the problem carefully and accurately, and 10 students(43.48%) who have score above the passing grade.

2. Implementation CTL cycle II

Implementation of action research to grade VII A of SMP al-Islam 1 Surakarta at second cycle, with its basic competence is to understand the properties of angles that formed if two parallel lines are crossed by another line was held in two meetings. The first meeting was held on Tuesday, 29 January 2013 at 14:20 to 16:00 and the second meeting was held on Thursday, 31 January 2013 at 13:00 to 14:20.

Learning process begins by praying, checking attendance, checking readiness of students to learn, and reviewing the material that has been taught in the last meeting. The teacher gives material about the properties of angles that formed if two parallel lines are crossed by another line to the students by power point. Then the teacher divides the students into 6 groups with each group consist of 3-4 children. Each group is given some problems to be discussed. The teacher asks for each group to send their delegation to present their results of discussion. For groups who have finished doing the discussion are given the opportunity to present their work after discussion time runs out. Teacher gives additional point to the group presentation. Teachers act as facilitators and provide reinforcement to the presentation. Students and teacher works together to check the results of discussion presented by each group. After it, they make general conclusions about the material which are being learned.

At the end of meeting, teacher evaluate the students' understanding about the properties of angles that formed if two parallel lines are crossed by another line and its size by giving 4 questions with its form are essay in 20 minutes. Finally, the learning process is closed by greeting.

The result of students' hard work in learning mathematics by using CTL strategy at second cycle is :19 students(90.48%) are demonstrating seriousness in learning process, 17 students(80.96%) are completing the problems on time, 18 students(85.71%) aren't giving up to

solve the problems, 15 students(71.43%) are solving the problem carefully and accurately, and 17 students(80.96%) who have score above the passing grade.

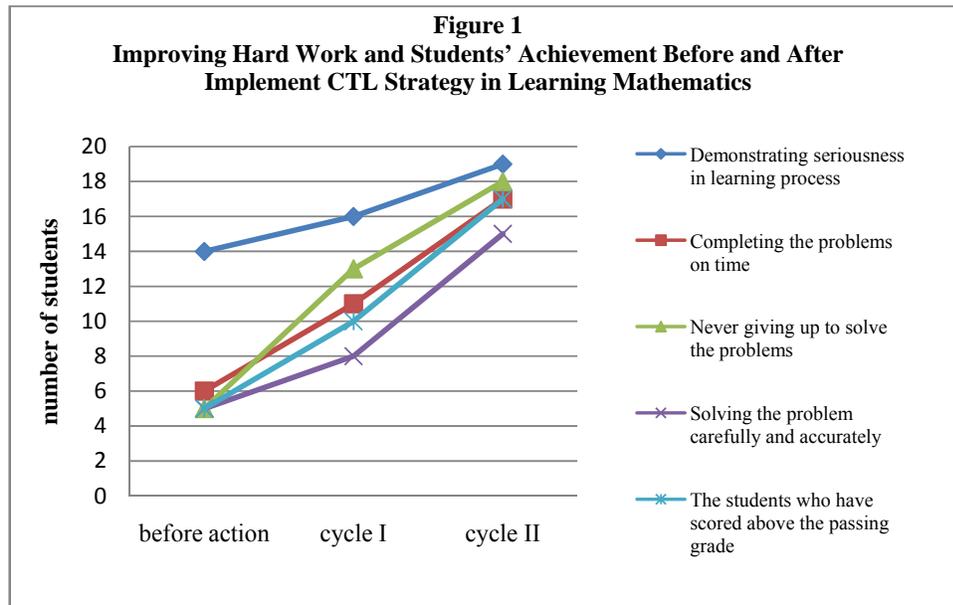
Based on the result of the action research cycle I until cycle II, there are positive changes in students' hard work and achievement. From the first cycle until the second cycle, the students' hard work and achievement are always increase. It can be concluded that learning mathematics by CTL strategy can improve the students' hard work and achievement of the students grade VII A of SMP Al-Islam 1 Surakarta in even semester for academic year 2012/2013.

For details, the improvement of hard work and student's achievement in learning mathematics can be seen in the table and graphic below:

Table 1
The Students Hard Work and Achievements before and after Implementation of
CTL Strategy in Learning Mathematics

No	Aspects	Indicators	Pre cycle	Cycle I	Cycle II
1	Hard work in learning mathematics	Demonstrating seriousness in learning process	14 students (58,33%)	16 students (69.57%)	19 students (90.48%)
		Completing the problems on time	6 students (25%)	11 students (47.83%)	17 students (80.96%)
		Never giving up to solve the problems	5 students (20,83%)	13 students (56.52%)	18 students (85.71%)
		Solving the problem carefully and accurately	5 students (20,83%)	8 students (34.78%)	15 students (71.43%)
2	Student's achievement	The students who have scored above the passing grade	5 students (20,83%)	10 students (43.48%)	17 students (80.96%)

The graphic of improving hard work and students achievements before and after research can be seen as follows:



CONCLUSION AND SUGGESTION

Conclusion

Based on the results of action research conducted in January 21 until January 31, 2013 in class VIIA junior Al-Islam 1 Surakarta, the conclusions are:

1. The hard work of students in learning mathematics by using CTL strategy increase. Specifically, the increase of hard work based on the indicators are:
 - a. Demonstrating seriousness in solving the problem
At the initial condition, there are 14 students (58,33%) who demonstrate seriousness in solving the problem, after the first cycle increased to 16 students (69.57%), and after the second cycle increased to 19 students (90.48%).
 - b. Completing the problems on time
At the initial condition, there were 6 students (25%) who completed the problems within the specified time limit, after the first cycle increased to 11 students (47.83%), and after the second cycle increased to 17 students (80.96%).
 - c. Never giving up to solve the problems

At the initial conditions, there are 5 students (20.83%) are not easily discouraged when faced with obstacles, after the first cycle increased to 13 students (56.52%), and after the second cycle increased to 18 students (85.71%).

- d. Solving the problem carefully and accurately.

At the initial conditions, there are 5 students (20.83%) solve the problem carefully and accurately, after the first cycle increased to 8 students (34.78%), and after the third cycle increased to 15 students (71.43%).

2. The achievement of students in learning mathematics using CTL strategy increase.

At the initial conditions obtained there are 5 students (20.83%) who scored ≥ 70 . After the implementation of CTL strategies in the learning process cycle I, there are 10 students (43.48%) who scored ≥ 70 . And after the implementation of CTL strategies in the learning process cycle CTLII, there were 17 students (80.96%) who scored ≥ 70 . This study concludes that the use of CTL strategy can improve the hard work and the students' achievement in learning mathematics grade VII A semester school year 2012/2013.

Suggestion

Based on the result of the study, it is recommended that:

1. To the teacher
 - a. Teacher must improve the students hard work in study mathematics, in order to the students achievement are also increase, one of them is by relating the material to the daily lives by CTL strategy in teaching.
 - b. Teachers should maximize learning media provided that the material being taught to be more real for students and improve student interest in learning mathematics, so that the students' hard work and achievements in study mathematics are increase.

- c. Teachers are expected to create an atmosphere of learning interesting and varied, both groups and individuals in order to create conducive learning environment and not boring to the students.
2. To the next researcher
To the next researcher are expected to the research that focuses on improving the hard work and student achievement by CTL strategy can be used as a reference for developing further studies, which are problems that arise in mathematics learning in the educational unit can be solved by using CTL strategy. for example, the application of CTL to increase liveliness, interest, motivation for students to learn mathematics, and other problems that arise in the process of learning mathematics.

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