

## Student Attitudes Towards Learning Mathematics, Mathematics Learning Problems And Reasoning Communication And Mathematical

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### ABSTRAK

In the mathematics classroom, the attitude domain is closely related to students' perception of mathematics. Enjoyable experience gained from learning that teachers will facilitate the improvement of students' positive attitude towards mathematics. In addition, attitudes also influence students' mathematics learning outcomes. Every positive addition on the attitude of students towards mathematics, there will be an increase math learning outcomes. Mathematical reasoning ability and communication are two of the few high-level thinking skills that are part of the math learning outcomes. To make the experience enjoyable for students in learning activities, the learning activities with diterapkanlah a group setting in which there is a speed race and the race proper. Therefore, this study examines students' attitudes toward three sapek, namely math, learning with the application of a quick activity on the draw in order cooperative learning, and problems of mathematical reasoning and communication.

The population in this study were all students in the junior class VII of Pekanbaru, amounting to 84 schools in the academic year 2011/2012 and the research subject is representing three junior high school level, medium, and low. The sampling technique was purposive sampling and stratified and quasi-experimental design using a pretest-posttest group without random. In all three schools selected two classes each of the experimental class (learning with activity quick on the draw in order cooperative learning) and a control class (conventional learning). The instrument used in the form of student attitude questionnaire which is intended only for classroom experiments.

Based on the results of statistical tests, it can be concluded that the students at each level (high, medium and low) have a positive attitude towards all three aspects. Overall, the students have a positive attitude for the better aspects of attitudes toward math than the other two aspects. Aspects of attitude towards the problems of mathematical reasoning and communication gets the lowest positive attitude than the other two aspects.

**Keywords:** Quick on the Draw, cooperative learning, mathematical reasoning, mathematical communication, student attitudes.

## A. INTRODUCTION

### 1. Background

The way teachers teach in the classroom is one of the factors that affect student achievement. In addition, there are also other factors that also influence, the factors that originate from within the students were also influenced by external factors such as learning activities that they follow. Internal factors in question is the level of intelligence of students and students' attitudes toward mathematics. As noted by Ruseffendi (2006: 9-12) that two of the five things that affect student learning success is the level of intelligence and positive attitude of students.

About the attitudes of students, based on research data, obtained a positive relationship between students' attitudes toward mathematics with mathematics learning outcomes. Every positive addition on the attitude of students towards mathematics, then an increase in mathematics learning outcomes (Siskandar, 2008: 444). A similar study

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conducted by Akinsola and Olowojaiye. Akinsola and Olowojaiye (2008: 10) argues that the method applied in the classroom teaching of mathematics plays an important role in the development of students' positive attitudes towards learning mathematics. In the mathematics classroom learning, the attitude domain is closely related to students' perception of mathematics. Enjoyable experience gained from teaching the teachers will actually facilitate an increase in students a positive attitude towards mathematics.

Given the positive correlation with students 'mathematics learning attitudes and learning achievements, hence improving student achievement can be done through the selection of learning activities that can improve students' positive attitudes. During this time, the learning that takes place in the junior high school in Pekanbaru tend to be conventional, so less to give a better effect on the development of positive attitudes of students. If learning is changed, it is expected to increase the positive attitudes of students. One is the application of a quick activity on the draw in order cooperative learning. Learning activities by applying a quick activity on the draw in order cooperative learning provides opportunities for students to actively raise the issue and resolve the problem and given the opportunity to participate in discussions with fellow students and with teachers, will allow students to feel excited and motivated to learn. If this actually happens in the learning process, it is not likely a positive attitude towards mathematics students will grow. Therefore, researchers feel the need to assess the students' attitudes. More detailed information about these can be obtained through the attitude scale.

Talking about the intelligence of the students, the level of intelligence of diverse students, there are good, mediocre, and weak. This is supported by Galton (Ruseffendi, 2006: 113) who argued that from a group of students selected at random (not selected specifically), will be found highly capable students, medium, and low spreads normally distributed. In general, high-ability students tend to be in the high school level, as well as medium and low-level students will tend to be in low and medium-level schools. In addition, the effect of a particular learning will give different results when applied to different capable students.

Furthermore, a good student achievement of course heavily influenced by the learning outcomes obtained. Good learning outcomes are influenced by the thinking ability of students, especially high-level thinking abilities. Two of the high-level skills is the ability of reasoning and mathematical communication. Although mathematical reasoning ability and communication essential for the students, but in reality both the mathematical ability is not yet satisfactory. SUMARMO (Siregar 2011: 2) found that the state scores of students in mathematical reasoning ability is low. The discovery Wahyudin (Siregar 2011: 2) also confirms that one of the weaknesses of the students, among others, lack of logical reasoning abilities in solving problems or math problems.

Mathematical reasoning ability and communication will only be able to thrive if the learning process to support students' active involvement in learning, both in reasoning on the knowledge they have gained and the results bernalarnya communicate ideas openly in the classroom, and eventually be able to improve the quality of education . As Zakaria and Iksan (2006: 35) argues that the quality of education is what is provided by teachers and are very dependent on what teachers do in the classroom. That is, to prepare today's students to become successful individual the next day, science and math teachers need to ensure that they teach effectively. Teachers must have knowledge of how students learn science and mathematics and how they teach in

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the best way. Changing the way we teach and what we teach in science and mathematics is a continuous professional attention. The work done must present the learning of science and mathematics that goes from the traditional approach to a student-centered approach.

In connection with the description that has been stated above, it is through this study, researchers tried to see the affective aspects of students' attitudes. Because this study focused on the activity of the quick on the draw in order of cooperative learning in the learning of mathematics, mathematical reasoning ability and communication students, the attitudes of students who will study also focused on students' attitudes toward math, learning with the application of a quick activity on the draw in order cooperative learning, and problems of mathematical reasoning and communication. Due to the influence of the level of intelligence of the students, the researchers conducted the study on three school levels, ie high school level, medium, and low.

## 2. Problem Formulation

Based on the explanation in the background, the formulation of the problem is used to guide the implementation of measures in this research is how students' attitudes toward mathematics, learning with activity quick on the draw in order cooperative learning, and problems of mathematical reasoning and communication to students who have learning by use of quick on the draw in order cooperative learning?

## B. METHOD

This study was conducted by using quasi-experimental methods through qualitative and quantitative approaches. There are two classes of research subjects, the experimental class that implements the activity quick on the draw in order cooperative learning and control classes that implement conventional learning. Only attitude scale questionnaire given to the experimental class, because the implementation of learning in a conventional classroom berifat control. The experiment was conducted in Pekanbaru, Riau in February to March 2012.

The study population was all students in the junior class VII of Pekanbaru in 2010/2011 academic year. Of all the existing SMP, three schools selected by stratified sampling technique sampling and purposive sampling each representing a school with a high-level, medium, and low. Grouping school level based on the results of National Examination in 2010/2011 for SMP. From 84 Junior High School and Private se-Pekanbaru, ranked 1-28 are categorized as high-level school, 29-56 ranked as medium level school, and a school ranked 57-84 as a low level. High school level is represented by a Junior High School, Junior High School level is represented by B, and the lower level is represented SMP Private C (school name not his real name). From each school will be selected each two classes each into the control class and experimental class. The research instrument used to collect data about students' attitude is the attitude scale questionnaire (Likert scale models. Subsequently, techniques of data collection using questionnaire technique.

Processing and data analysis done by tests of normality and homogeneity. Further follow-up test using test One Sample T Test. Processing this data using SPSS 16 and Ms. Excel. Because of the attitude scores were used to calculate the operation is in the form of an interval scale, then scale it must first be converted from ordinal scale to

an interval scale with the help of the program Succesive Method Interval (MSI) for the transformation of data into interval under Ms. Excel.

## C.RESULTS AND DISCUSSION

To see the students' positive attitudes of significant value or not, then the test of the mean. If the data are normally distributed, then the test is done with a test One Sample t Test and if the data is not normally distributed test performed with the Kolmogorov-Smirnov One Sample Test with SPSS 16.

### 1. Positivity Student Attitudes toward Math Lessons

Students' attitudes toward math lesson consists of two indicators. The first indicator contains five positive statements and five negative statements. The second indicator contains seven positive statements and five negative statements. Summary results of normality test calculations can be seen in Table 1 below:

**Table 1.**  
**Normality Student Attitudes toward Math Lessons**

School Level	Significance	Description
High School Level	0,000	Reject $H_0$
Medium School Level	0,000	Reject $H_0$
Low School Level	0,000	Reject $H_0$

$H_0$ : The samples come from populations with normal distribution

$H_1$ : The sample comes from the population is not normal

Based on Table 1, it can be seen that all levels of the school has a significance value less than  $= 0.05$ . This means that the data sample to score students' attitudes toward math are not normally distributed. Furthermore, because the data are not normally distributed, then tested the One Sample Kolmogorov-Smirnov Test. Summary of results of testing students' attitudes toward math lessons can be seen in Table 2 below:

**Table 2**  
**Student Attitudes toward positivity Math Lessons**

School Level	Significance	Hipotesis	Discription
High School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$
Medium School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$
Low School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$

Based on Table 2, it appears that half of the value of the significance test of Kolmogorov-Smirnov One Sample Test at each school level is less than. This means that the percentage of students' attitudes toward mathematics more than expected. In other words, students at the high school level, medium, and low to have a significant positive attitudes toward math.

## 2 Positivity Student Attitudes toward Learning with Application Activity Quick on the Draw Order in Cooperative Learning

The attitude of students towards learning with the application of a quick activity on the draw in order cooperative learning consists of three indicators. The first indicator and the third contains a positive statement and one negative statement. The second indicator contains two positive statements and two negative statements. Summary results of normality test calculations can be seen in Table 3 below:

**Table 3**  
**Normality Student Attitudes toward Learning**

School Level	Significance	Discription
High School Level	0,000	Reject $H_0$
Medium School Level	0,000	Reject $H_0$
Low School Level	0,000	Reject $H_0$

$H_0$ : The samples come from populations with normal distribution

$H_1$ : The sample comes from the population is not normal

Based on Table 3, it can be seen that each school level have a significance value less than  $= 0.05$ . This means that the data sample to score students' attitudes toward learning with the application of a quick activity on the draw in cooperative learning arrangements are not normally distributed for each school level. Furthermore, since the entire data is not normally distributed, then tested the One Sample Kolmogorov-Smirnov Test. Summary of results of testing students' attitudes towards learning with the application of a quick activity on the draw in order cooperative learning can be seen in Table 4 below:

**Table 4**  
**Student Attitudes toward Learning positivity**

School Level	Significance	Hipotesis	Discription
High School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$
Medium School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$
Low School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$

Based on Table 4, it appears that half of the value of the significance test of Kolmogorov-Smirnov One Sample Test on the third level of less than school. This means that the percentage of students' attitudes toward learning with the application of a

quick activity on the draw in order cooperative learning more than expected. In other words, students at the high school level, medium and low to have a significant positive attitude towards learning with the application of a quick activity on the draw in order cooperative learning.

### 3 Student Attitudes toward positivity Problems Mathematical Reasoning and Communication

Students' attitudes toward issues of reasoning and mathematical communication consists of two indicators. The first indicator contains a positive statement and one negative statement, while the second indicator contains two positive statements and two negative statements. Summary results of normality test calculations can be seen in Table 5 below:

**Table 5**  
**Normality Student Attitudes toward Problem**

School Level	Significance	Discription
High School Level	0,000	Reject $H_0$
Medium School Level	0,000	Reject $H_0$
Low School Level	0,000	Reject $H_0$

$H_0$ : The samples come from populations with normal distribution

$H_1$ : The sample comes from the population is not normal

Based on Table 5, it can be seen that all three levels of schools have a significance value less than  $= 0.05$ . This means that the sample scores for the data about the students' attitudes toward mathematical reasoning and communication are not normally distributed for each school level. Furthermore, since the entire data is not normally distributed, then tested the One Sample Kolmogorov-Smirnov Test. Summary of test results about the students' attitudes toward mathematical reasoning and communication can be seen in Table 6 below:

**Table 6**  
**Student Attitudes toward positivity Problem**

School Level	Significance	Hipotesis	Discription
High School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Accept $H_0$
Medium School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$
Low School Level	0,000	$H_0 : \mu = 3$ $H_1 : \mu > 3$	Reject $H_0$

Based on Table 6, indicates that half of the value of the significance test of Kolmogorov-Smirnov One Sample Test on the third level of less than school. This means that the percentage of students' attitudes toward communication about mathematical reasoning and more than expected. In other words, students at the high school level, medium and low to have a significant positive attitude to the matter of mathematical reasoning and communication.

Overall, the students have a positive attitude for the better aspects of attitudes toward math than the other two aspects. Aspects of attitude towards the problems of mathematical reasoning and communication gets the lowest positive attitude than the other two aspects. This could happen because in everyday learning activities, students are rarely involved in penyelesaian problems that require mathematical reasoning ability and communication more. Activity quick on the draw in order cooperative learning is a learning activity that is completely new to the students and it seems that students enjoy learning with these activities, so that students fairly high positive attitude to this aspect.

The mean percentage for the high school level is better than the other two school levels, followed by medium and low levels of school. This led researchers to an assumption, ie the higher the level of the school, the better the students' attitudes toward mathematics and related matters in it, and vice versa.

#### **D. CONCLUSIONS AND RECOMMENDATIONS**

Based on the results of research and discussion, it can be concluded that the students showed a positive attitude toward math, learning with the application of a quick activity on the draw in order cooperative learning, and problems of mathematical reasoning and communication.

Based on the findings obtained in the field, the researcher recommends:

1. Efforts should be made to increase the awareness and behavior of students at the high school level to be able to cooperate in the learning activities.
2. It should be given more attention and effort on the fourth phase of the implementation of learning with the application of a quick activity on the draw in order to be more cooperative learning improve students' mathematical reasoning and communication.

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