

# **THE EFFECT KIND OF WRITTEN TEST AND BELIEF OF MATHEMATIC TOWARD MATHEMATIC RESULT (An Experimental In Student Class XI of SMK YPI Way Jepara)**

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## **ABSTRACT**

This study aim is to find out the effect kind of written test and belief of mathematic toward mathematic result. The sample in this research is the second grade of vocational school of YPI Way Jepara. The dependent variable is mathematic result and independent variable is kind of written test that are depent to problem solving test and structure exercise method test, and belief of mathematic that are depent to positive and negative category. The instrument that use are mathematic result test and quisioner about mathematic belief. The method used was an quasi experiment method using the treatment by level design 2 x 2. The research hypotheses were tested using two way analysis of variance (ANAVA). The study concluded that mathematic result which the student have positive belief of mathematic is more effective treat by problem solving test, and the mathematic result of the student that have negative belief of mathematic is more effective treat by structure exercise method test.

**Keywor :** Kind of written test, belief of mathematic, mathematic result

An important thing in learning is change. These changes are earned as a result of experiences in the from of behavior change (R. Gagne). Someone get behavior change of mental activity which takes place in the interaction with the environment so that can be changing the overall personality and relatively settled. (Sumantri and also 2015; Slameto; Rohmalina, 2016; and Thursan). The results of the perlikau changes are then known as "learning result".

The results of the study of mathematics is a change in the behaviour of students in the cognitive domain which shown in the form of masteringthe mathematical material that contains symbols, deductive science, science of patterns, and organized structure. Behavior change can be observed and quantified then declared in the form of score test in study results . (Hamalik; Bloom; Nawawi; Russefendi;, and Hamzah).

The learning outcomes of students in Indonesia is relatively low. This is based from TIMSS and PISA survey. In 2007, Indonesia is at rank 36 of the 49 state number of participants (TIMSS) while in 2009 Indonesia are on rank 60 of the 65 state number of participants countries (PISA). Therefore need to aranged some innovation inlearning process to improve students resultsin math learning.

Learning of mathematics will be successful if teachers understand and capable to communicate the subject matter well. The use of the variation written test type based on material adjustment and student characteristics expected to facilitate students in understanding and implementing the subject matter. Learning can be

more meaningful for the student when they can understand the material and use such material that they learn in daily life. When students understand and can apply them in daily life then the learning objectives are achieved and ultimately the results of learning math will increase.

Currently expected of teachers more creative in modifying the learning activities. Learning innovation that made must suit with the expectations of students in the better learning process. The learning process which appropriate will make students feel happy and increase your students curiosity. However, until now there are teachers who still directly use a question from books or internet for student's test. This makes the math test feel monotonous and less attractive. The written test is given a question not directly found in daily life so that make student hard to understand the question.

Students are more relies on teachers to solving the issue. Student will imitating the formula or the example that was given by the teacher to solve the issue. When getting a different type of problem, students feel confusion in elaborate answers. These condition make students feel saturated and bored. If this condition continues happen, students will assume that mathematics is a difficult lesson. The assumption was also made the level of confidence of students being dropped

Efforts that can be done to improve the factors that might affect the results of student learning that is the type of written test. The type of written test question that suit and exactin the lessons of mathematics is the most important part for achived of learning objectives, as well as the purpose of education as a whole. The use of exactly type of the written test will make it easier for students to understand the material and develop the ability of solving problems in learning.

It takes a consideration when we choose the written test question type because that will be effected on the results of the study. A type of question tests that suited with the expectations of students, support the student desire to developing the ability thus achieved the purpose of learning. The application of reserved tests written in learning math can be implemented through problem solving and problem structure exercise method.

Problem-solving is a matter that make to create a new problem (non recurring) and challenge the student to relate the knowledge possessed to finish the issue recently faced.

Problem structure exercise method is structured exercises that are made starting from a low level towards a higher level with the aim of improving the understanding of students in a certain material.

Aside from the written test question types, teachers also have yet to figure out the beliefs of students about math. Teacher equate the treatment learning for every class, both of which have positive or negative mathematical beliefs. Finally the students belief skills negatively are less able to adapt to the students that have mathematical beliefs positive so learning outcomes become less than optimal.

Aside from the written test question types, the result of learning math students can also be enhanced through student's belief about math. This is in line with the opinion of the Fauzi that stating, mathematics belief affected the success of math learning. Belief is a way of thinking or the student's personal views against something that is thought to be based on the experience, then formed the attitudes

and establish values (Widjajanti; Kapetanas and Zachariades, 2007; Hill, 2008; Keraf and two as well as Goldin, 2002).

Research that has been done by Desti Wahyuni dkk (2013) related the results learn math reveals that students belief affected the ability of problem solving and have an impact on the results of the study.

This research aims to know the influence of the type of written test and belief about mathematics toward mathematical learning results.

## METHOD

This research uses quasi experiment method with a 2 x 2 factorial design with *the dependent variable is mathematic result and independent variable is kind of written test that are depend to problem solving test and structure exercise method test, and belief of mathematic that are depend to positive and negative category*. The population in this study are all the students of SMK YPI Way Jepara. The sample in this research is the grade XI consists of four class school year 2016/2017. Location of the research at SMK YPI Way Jepara, Lampung Timur. *The instrument that use are mathematic result test and quisioner about mathematic belief that use validity and reliability test.*

## RESULTS

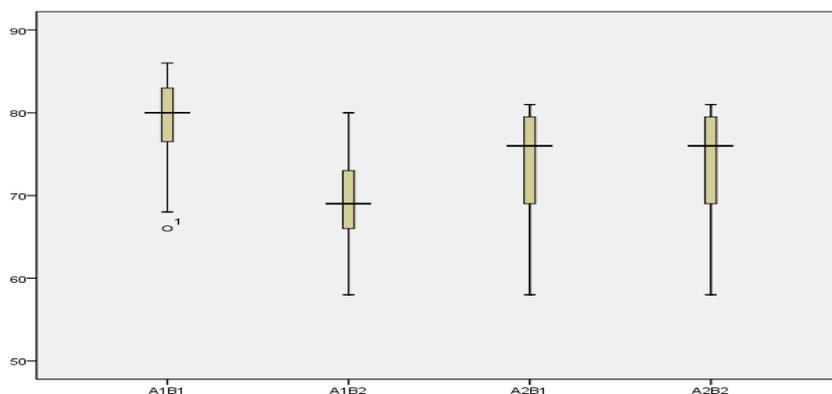
A description of the analysis results obtained the average results of learning math students use problem-solving (A1) better than the matter of structure exercise method (A2). The spread data results of the study were given problem structure exercise method (A2) more homogeneous distribution of data compared to the results learning math students use problem-solving (A1).

Table 1. Description of Mathematic Result

Data Statistik	Kelompok Perlakuan	
	A <sub>1</sub>	A <sub>2</sub>
Mean	74,05	70,88
Stand. Dev	7,48	7,37

Groups of students are given a problem solving and have a positive belief about mathematics (A1B1), median value lies in the middle of the box and whisker bottom line is longer than the upper whisker lines. This means that the shape of the distribution of the score group learn math results A1B1 skines negative. While in the Group given problem solving and have negative beliefs about mathematics (A1B2), median value does not lie in the middle of the box and whisker lines top and bottom of the same length. This means that the shape of the distribution of the score results of the given learning math problem solving and have negative beliefs about mathematics (A1B2) symmetrical. While in the Group given reserved structure exercise method and have positive beliefs about mathematics (A2B1), median value does not lie in the middle of the box and whisker bottom line is longer than the upper whisker lines. This means that the shape of the distribution of the

score group learn math results A1B1 skines negative. While in the Group given reserved structure exercise method and have negative beliefs about mathematics (A2B2), median value does not lie in the middle of the box and whisker bottom line is longer than the upper whisker lines. This means that the shape of the distribution of the score group learn math results A2B2 negative skines.



**Figure 1. Mathematics Results for Each Treatment**

The results of the analysis of the main effect obtained at level of significance  $\alpha = 0.05$  indicate that p. value less than 0.05, so the results of conclusions to be drawn on the group learn math students are given a matter of problem solving higher than results Learning math at a group of students who are given a matter of structure exercise method and there is the influence of the interaction between type of written test and belief about mathematics toward mathematical learning results.

The results of the analysis of simple effect obtained at level of significance  $\alpha = 0.05$  indicates that  $t_{hitung}$  is higher than  $t_{tabel}$  so it can be drawn the conclusion that the Group of students who are given a matter of problem solving and have positive belief about mathematics higher than students who are given a problem with structure exercise method and have positive belief about mathematics. The results of learning math at a group of students who are given a matter of problem solving and have negative belief about mathematics were lower than the results of learning math at a group of students who are given a matter of structure exercise method.

## DISCUSSION

The results of the reasearch showed that mathematic result for student that given a math mater of problem solving better than the student who are given a matter of structure exercise method. Problem-solving is created to introduce new issues in order to understand the same material. Students are taught to associate the material with the new issue so can explore any prior knowledge. Based on the analysis of self monitoring that have done, seen that students use a variety ways to solve the problem-solving.

## CONCLUSION

The results of this research indicate that a written test type and belief about mathematics affected the results of the mathematic learning, the results of student mathematic learning who have positive beliefs about mathematics more effectively given the matter of problem-solving and students who have negative belief about mathematics more effective given a matter of structure exercise method.

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