

# Efforts to Improve Student Attitudes toward Mathematics Using Contextual Teaching and Learning

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**Abstract.** This research is a classroom action research that aims to improve students' attitudes in mathematics using Contextual Teaching and Learning approach. Subjects in this case were 31 students of class VII B SMP Negeri 6 Yogyakarta, which in the school year 2016/2017. Stages in this classroom action research is planning, acting, observing and reflecting which has been implemented by 2 cycles. The research instrument is the form of questionnaires students' attitudes toward mathematics. Data analysis technique that used is quantitative and qualitative. The results showed that students' attitudes toward mathematics is through increased from the initial conditions to the first cycle and the second cycle. At the initial conditions there are low category attitudes of students with an average score of 99,47. Meanwhile, in the first cycle, low category of the students is reduced and in the second cycle there is no more student with low category attitudes. The average score in cycle I is 100,9 and in the cycle II is 101,2. So that, Contextual Teaching and Learning approach can increase the students' attitudes toward mathematics, this approach can be used as an teachers alternative to improve students' attitudes toward mathematics.

## INTRODUCTION

Indonesia is a heterogeneous nation, composed of diverse differences ethnic, culture, customs, art, religion, race, and language. However, the diversity can not broke the nation, its Proven with maintained Still Republic unity of Indonesia (NKRI) until now. Integrity of the Republic is certainly not created by itself, but created from different factors That helped the realization of the wholeness. One factor is attitude, whose owned by the Indonesian nation that have positive thing that helps the continuity of Life hearts community.

Attitude It affects the continuity of Human Life to respond Something encountered everyday life. Rokeach states "Attitude is an organization of some of the beliefs is focused on an object or a particular situation pre-dispose one to respond in some way preferential" [1]. Meanwhile, Allport [2] states that "attitude is a mental and neural state of readiness, organized through experimence, ordinamyc directive exert influence on the individual's response to all objects and situations with which is associated. Therefore attitude Need owned by individuals as hearts stock to continue a life.

Seeing the importance of attitude in Minister of Education and Culture rule number 22 of 2016 about content standards elementary and secondary education the load on level competence and core competence, where prayer one core competencies should include attitude [3]. Spiritual attitude and social attitude. Government regardful students attitude, it is intended that children grow and develop into the nation's next generation that had a positive side. Thus, different efforts from the government and parties-parties who cares with nation generation safety relentlessly campaigned for Students not only Just clever mastering academic world knowledge, but also need has spiritual attitude and social attitude.

One thing to do is attempt to have positive attitude, a nation through the integration of positive values indicated to someone starts from school. As explained in undang-undang number 20 of 2003 about National Education System that national education serves to develop the ability and form a nation's civilization its character and frame hearts dignified national life [4]. So Indonesia education is not only academic centers, but also with attitude foster positive for a review in order to form character and character of the nation.

Minister of Education and Culture rule number 59 of 2014 states that the prayer one characteristic is owned curriculum 2013 attitude between namely develop balance spiritual and social, knowledge, and skills, as well as apply different [5]. And then using that attitude in school or in the environment. It is a t goal of education in Indonesia different level, simply not only to guide students to review being a graduate of excellence in academic, but also aimed at the reviews make students have the spiritual nature of the attitude and social relationship.

The positive attitude instilled on self students, not enough integrated lesson through religious education and citizenship, but also need through to included in lesson, including mathematics. Thus it will make students attitude, students will form has been accustomed to be guided in order to always be good hearts different occasions. Students are directed to be able to respond positively with everything their faces, because with a positive attitude hopefully also expected to provide positive effects on student self review.

When linked by previous math learning reality today, the integration of learning mathematics attitude still not as expected. Based on the findings of the questionnaire students attitude against mathematics which, given SMP Negeri 6 Yogyakarta Class VII B, can concluded that students tend to not love math, reluctant if asked to do math in front of class, not want to discuss about math, they so glad if of their math lesson empty. The questionnaire results attitude before Students get treatment can you see in this table below.

**TABLE 1.** Initial Data of Student Attitudes Condition toward Mathematics

Variable	Interval	Category	Preliminary
Student Attitudes Condition Toward Mathematics	$126 < x$	Extremely High	0%
	$102 < x \leq 126$	High	41,90%
	$78 < x \leq 102$	Moderate	48,40%
	$54 < x \leq 78$	Low	9,70%
	$x < 54$	Extremely Low	0%

From the data shows that most big attitudes Students in medium category is equal to 48.40% (15 students), meanwhile, 41.90% (13 students) high categorized. But, there are 9.70% (3 students) that derive mathematical against attitude in low category. From the findings, are expected there is an increase, so no more students get low category and there are students who include into the very high category. Thus, efforts are needed to enhance the students' attitudes toward mathematics through a better learning.

Integrating values in the of learning math attitude also need in some way with student learning achievement improvement. Therefore, mathematics learning should may become weapons for students to get high learning achievements and good attitude. Thus, should be the way out for the review the objectives to be achieved realize that, one way by through learning approach. Such an approach should encourage students in active learning process and connected in contextual problem that often student find in their life everyday, so it can be helping students understanding the material being studied.

One approach to learning that is expected to integrate the values of the positive attitude of students to mathematics is the approach of Contextual Teaching and Learning (CTL). Contextual learning is an educational philosophy that believes that a learning can be enhanced by linking learning material with real life contexts of students and work around students who may be often be known students because often encountered in their daily lives [6]. As an important component of CTL that makes connection or meaningful relationship (making meaning full connections), do meaningful work (doing significant work), do a self-learning (self-regulated learning), collaboration (collaborating), critical and creative thinking (critical and creative thinking), helps individuals to grow and develop (nurturing the individual), achieve a high standard (reaching high standart) and using authentic assessment (using authentic assessment). Those components is the opinion of Johnson [7], the complete argued that "The CTL system is the system encompasses the following eight of components: making meaning full connections, doing significant work, self-regulated learning, collaborating, critical and creative thinking, nurturing the individual, reaching high standart, using authentic assessment. To the such components, through CTL approach is expected to help students to be actively involved in the learning process and connects the contextual issues by inserting the values of a positive attitude and obtain satisfactory academic achievement. This indicates that the CTL approach contribute to improving students' attitudes toward mathematics.

CTL can help teachers in relating the subject matter to real life situations and teachers give motivation to students to make connections between knowledge and its application in the lives of students as members of

families, communities and workers [8]. It is interpreted from the statement that "CTL is a conception of teaching and learning that helps teacher relate subject matter content to real world situations; and motivates student to the make connections between knowledge and its applications to Reviews their lives as family members, citizens, and workers. Johnson adds that a contextual approach aims to help students to see the meaning of the academic material studied with methods to connect academic subjects with real-world context are often encountered by students, so students can better understand this material, the complete say that "... an education process that aims to help the student see meaning in the academic material they are studying academic subjects by connection with the context of the daily lives, that is, with the context of membuka, social, and cultural circumstance [7]. Those opinions emphasized that CTL approach not instrumental in the achievement of academic competence alone, but also contribute to develop social competence of the students, in this case related to the attitude of the students. The existence of interaction in the middle of student diversity, both in terms of academic abilities, gender, ethnicity, culture, and race are expected to guide the students to behave better to mathematics, with the object highlighted is the study of mathematics and math teacher.

## **EXPERIMENTAL**

This research is a classroom action research (CAR) which aims to improve students' attitudes toward mathematics through contextual approach to teaching and learning in mathematics. CAR includes stages planning, action, observing and reflecting. Meanwhile, the model used in this CAR is a model that has been developed by Kemmis & McTaggart [9]. This classroom action research was carried out in October-November 2016. The subject of this research is the students of Junior High School 6 Yogyakarta class VII B in the academic year of 2016/2017. The subject was 31 students which consists of 14 males and 17 females. Based on the questionnaire given to them, the result showed that most of the students have a mediocre category in student attitudes towards mathematics and some have low category. Moreover, their academic achievements were still under minimum mastery criteria, it based on their mid test result held on September 2016. Therefore, the researchers want to conduct an action research using Contextual Teaching and Learning to improve the students' attitude towards mathematics.

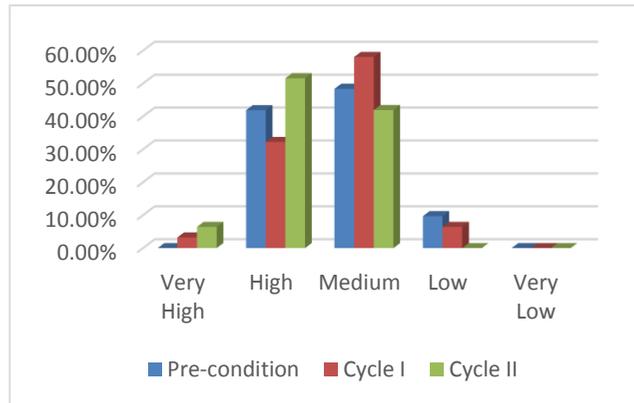
This research used a method developed by Stephen Kemmis and Robin McTaggart which implemented in four cycle, they are planning, acting, observing, and reflecting. The research focused on improving the students' attitude in mathematics by giving an action using Contextual Teaching and Learning approach to the students. There are five strategies relating, experiencing, applying, cooperating, and transferring [10]. The expected result was achieved in cycle I but the researchers took cycle II to make sure the result. And it showed that the result was higher than before so that, the research was cut off in the end of cycle II.

The instrument of the research was a questionnaire consists of 30 statements. Meanwhile, the technique of the analyzing data was quantitative and qualitative. Analyzing quantitative data aims to analyze the data score which collected from the collecting data instrument. Meanwhile, analyzing qualitative data was used to describe the learning process using CTL approach. In analyzing quantitative data, the questionnaire which given to students were analyzed by giving 5 score to positive response category and 1 score to negative response category. Therefore, every students would get a range score 30 – 150. After calculating the score, the researchers then classified the students' attitude in mathematics. In classifying the data, the score was converted to five scale adapted from Widoyoko [11]

The success indicator of this research was the improvement of the student attitude towards mathematics in every cycle and it reached the settled target: (1) 64,51% (20 students) got high category; and (2) 35,48% (11 students) got medium category.

## **RESULT AND DISCUSSION**

The result of the class action research conducted in SMP Negeri 6 Yogyakarta class VII B in two cycles presented in the chart below:



**FIGURE 1.** Student Attitude in Mathematics Questionnaire Result

Based on questionnaire result, it was 58,06% (18 students) with average score 100,9 showed that the students' attitude towards mathematics was on the medium category in the cycle I. 32,26% (10 students) was on high category, it was higher than the pre-condition. In low category, there was only 6,45% (2 students). In the cycle II, with average score 101,2 or 41,94% (13 students), higher than cycle I, showed that the students' attitude towards mathematics was on the medium category. For the high category, there was 51,61% (16 students) which improved than before. It can be seen also for the very high category which was 6,45% (2 students). According to the findings from cycle I and cycle II, the students' attitude towards mathematics improved significantly from pre-condition to cycle I and cycle II.

According to the results of that study. it can be said that giving action, to students by applying contextual teaching and learning approach can improve student attitudes toward mathematics. This is same like the research by Yunianto [12] which have concludes that the CTL approach by using STAD and GI model is effective if viewed from students' attitude toward mathematics. The data research shows that there is an increase percentage of students who have reached the high criteria in the STAD class is 31.25%, while in the GI class that is equal to 22.22%. And then, research from Suzana [13] concludes that CTL approach in both NHT and TGT settings is effective in terms of student achievement and mathematical attitudes. The details of the data on students' mathematical attitude for the class with NHT setting increased by 11.76% in very good category, while in the class with the setting of TGL there was an increase of 17.29%. So that, it can be concluded that the CTL approach can improve students' attitudes toward mathematics.

## CONCLUSION

Based on the results and discussions, it can be concluded that student attitude towards mathematics can improve by applying CTL approach which conducted in 2 cycles. In applying CTL approach, teacher should choose materials which appropriate with CTL characterizations and should understand the strategy in applying this approach. In addition, this research can be conducted in other schools which their students' affective and cognitive conditions are still in low rate.

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