

The Students' Anxiety in Facing the Mathematical National Exams

Suharto Suharto, Wahyu Widada

Universitas Bengkulu
Bengkulu, Indonesia
w.widada@unib.ac.id

Abstract—The objective of this study was to determine the relationship between mathematics anxiety and anxiety in facing a math exam. The population of the study was all students in one of vocational senior high school in Kota Bengkulu, with a sample of 85 students. The sample was selected by the random technique. Data collection was carried out using the instruments of questionnaire and test of mathematics understanding ability. It was used to measure students' anxiety and cognitive level of mathematics understanding. Data were analyzed using inferential statistics. The result of the study showed that an increase in anxiety is associated with a decrease in the ability to understand mathematics.

Keywords—*mathematic anxiety; understand mathematics; ethnomathematic*

I. INTRODUCTION

Mathematics is a core subject in senior high schools. At the end of the year, students are required to take a national mathematics exam. Many students have difficulty facing the test. So that, mathematical difficulties result in anxiety. Indeed, students who felt anxious about mathematics [1]. Especially experienced by senior high school students, and finally, math anxiety has been one factor that affects student achievement [2].

One of the biggest obstacles for the teacher is teaching students who experience math anxiety [3]. Survey results indicated that math anxiety seems to distress a considerable group of students [4]. Math anxiety has been defined as "an inconceivable dread of mathematics that can interfere with manipulating numbers and solving mathematical problems within a variety of everyday life and academic situations" [3]. Math anxiety is loosely regarded as feelings of fear, avoidance, and dread when dealing with any situation relating to mathematics [2]. It is a negative emotional response to the current or prospective situation involving mathematics [5]. There is anxiety toward evaluation, anxiety toward temporality, anxiety toward an understanding of mathematical problems, anxiety toward numbers and operations, and anxiety toward mathematical situations in real life [6].

The national math exams are carried out online. This also adds to anxiety for students. Therefore, teachers should strive to understand mathematics anxiety and implement teaching and learning strategies so that students can overcome their anxiety [2]. The teacher must also pay attention to male or female

students. Because there is anxiety about mathematics in high school students, and that women show more anxiety about mathematics than men [7]. Students in high school level, both men and women show math anxiety.

The positive relationship between mathematics anxiety and test anxiety. In addition, mathematics anxiety and performance on a non-routine mathematical problem solving test showed a marginal linear relationship whereas test anxiety had almost no relationship with the performance on the non-routine mathematical problem solving test [8]. The anxiety among high school students comes from anxiety and discomfort caused by mathematics when students face problems because they do not feel confident and this does not allow them to think clearly, therefore, students will change when they have to do math problems. In terms of gender, results show that there are differences between men and women about mathematics anxiety. Women have more anxiety than men in this discipline [7].

The anxiety level of students in facing the National Exams on mathematics subjects is in the very high category. These results are influenced by several factors: the fear of a large student on the inability of answering questions and the lack of time in the implementation of the National Exam [9].

Apparently, anxiety about mathematics, experienced by male and female students. These students experience anxiety because they have low self-confidence [7].

Therefore, it is necessary to consider the level of mathematical anxiety and its impact on student learning processes and outcomes. Also, it is closely related to students' mathematical abilities in facing national examinations. Thus, this paper discusses the relationship between mathematical anxiety and anxiety in the face of a mathematics exam [10].

II. METHODS

The research method used was a survey. The population was all students in one of vocational senior high school in Kota Bengkulu, with a sample of 85 students. The sample was selected by the random technique. Data collection was carried out using the instruments of questionnaire and test of mathematics understanding ability. It was used to measure students' anxiety and cognitive level of mathematics understanding. Data were analyzed by using correlation tests.

III. RESULTS AND DISCUSSION

Based on the questionnaire and test of mathematics understanding ability, the correlation coefficient of $r = -0.569$ with a significance level of 0.012 ($p < 0.05$). This means that there is a significant negative relationship between the anxieties of facing a national exam with the ability to understand mathematics. The correlation shows that an increase in anxiety is associated with a decrease in the ability to understand mathematics. Conversely, low math anxiety can improve the ability to understand mathematics.

Based on the analysis, it was found that anxiety in facing the exam contributed 28% to the ability to understand mathematics and 72% from other factors. This means that the ability to understand mathematics is influenced by the level of mathematics anxiety of 28%. The increasing math anxiety of vocational students results in a decrease in the ability to understand mathematics.

According to the results of this study, similar results indicate that high levels of mathematical anxiety have a negative effect on mathematics learning achievement [3]. A moderately strong negative correlation (0.571) between achievement and anxiety was obtained, using students' previous year, end-of-year mathematics examination results [4]. These finding coincided with those from relevant studies, indicating that the highly-anxious students are probably not performing in mathematics.

The results of other studies show that the negative effects of mathematical anxiety on students' short-term and long-term learning have a relationship to the ability to understand mathematics [10]. the level of anxiety in facing the national exams on mathematics subjects is very high [9]. In addition, the anxiety of students occurs when the national mathematics exam is near.

There is a relationship between mathematical anxiety and mathematical problem solving. Research shows that students' anxiety toward mathematics can influence the resolution of non-routine problems [8].

The results of the study inspired us to reduce math anxiety. One of them is through learning mathematics that is close to the mind and in accordance with the local culture. This makes it easy for students to understand mathematics. Ethnomathematics [11] is one of the approaches to this learning [12], by stating the point of realistic problems [13]. The results of the study showed that there were differences in the ability of mathematical representation between students who were taught by realistic mathematical approach and conventional learning; there is a difference in the ability of mathematical representation between students who are ethnomathematical and non-ethnomathematical oriented; there is an interaction effect of the learning approach and the orientation of mathematical material on the ability of mathematical representation [14].

IV. CONCLUSION

The conclusions of the study are that anxiety facing national exams is negatively related to the ability to understand mathematics. This negative correlation is not significant, so it needs depth through further research. We recommend that to reduce math anxiety was through realistic mathematics learning and ethno-mathematics approaches.

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