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## **The Analysis of Math Anxiety Students in X Grade Smk**

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### **Abstract**

The aim of the study was to describe the level of mathematical anxiety and find the causes of mathematical anxiety. This type of research is a qualitative research. The sample in this research is 30 students from class X AK which is randomly selected from 210 students of class X SMK. Data collection using questionnaires on factors affecting student anxiety was adopted by Wahid (2013). The results obtained state that the main factor causing student's anxiety is assignment. The assignment is the first factor of anxiety assessment by students on mathematics that is equal to 39.3% followed by emotions of 36% then by environmental factors of 34%.

**Keywords:** Level of mathematical anxiety; mathematical anxiety.

### **1. Introduction**

Mathematics is an important subject in school curriculum in every country. From a young age children must learn the basic concepts of mathematics in order to function well in their everyday life [1]. Mathematics has been taught so that children can understand the numerical data presented to them, and able to perform simple and complex calculations in day-to-day encounters. It is also common belief among students that mathematics is a hard subject and difficult to learn. But from the observation it is known that there are still many students who get value under KKM. This indicates that the factors that influence student learning outcomes.

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Be it external factors and internal factors, external factors are how the teaching provided by the teacher. While internal factors are factors that exist within the individual itself. The inner factor can be student's view of mathematics. The negative view of students about mathematics that is considered a difficult lesson, will cause anxiety during the learning of mathematics as well as at the time of the test.

Yang [2] wrote 'To many people "MATH" is a scary four letter word; they don't like it or feel that they are good at it'. He defines it as 'People who feel tension, apprehension and fear of situations involving math are said to have math anxiety'. Student anxiety in response to mathematics is a significant concern for educators in terms of the perception that high anxiety will relate to avoidance of mathematics [3].

Mathematical anxiety is situations that happen to some people when facing a mathematical problem. Good feeling towards mathematics brings good perception about mathematics, and vice versa. Emotions play the most important part in this situation. According to Wondimu and his colleagues [4] in their study, the uneasy feeling such as panic, clueless and helplessness when working on something related to mathematics tends to affect the mathematical performance especially for students. They also found that mathematical self-concept and mathematical anxiety are reciprocally related.

Rameli and his colleagues [5] felt that anxiety towards mathematics could lead to avoidance in doing mathematics. Students tried to avoid solving mathematics related problems or choosing mathematics related courses. As the result, they were unable to perform well in mathematics. Several poor physical conditions such as drowsiness, headache and dizziness appeared once teachers mentioned certain topics in mathematics.

According Ekawati [6] The results obtained The conclusion that anxiety affects Student learning outcomes strongly. Teacher need to anticipate this anxiety that occurs, so that the results obtained can be learned maximum.

Many students indicated mathematical anxiety. The results of Olaniyan and Medinat F. Salman [7] studies concluded that mathematical anxiety has grown among high school students in Nigeria. While in England, Brian [8] states that a quarter of students in the UK is equivalent to 2 million students otherwise indicated mathematical anxiety. In Zimbabwe, Denhere [9] states that The majority of secondary school level students do not "enjoy" the learning Mathematics and prefer other subjects when compared to mathematics. It shows that mathematical anxiety is a worldwide problem.

Thus from the above reference indicates that the anxiety that exist in the student self determines the results of his mathematics learning. This research is to analyze mathematical anxiety in student of class x smk.

## **2. Math Anxiety**

Arifin [10] explained that "students' anxiety is an integral part of education Every student feels a certain amount of anxiety at one time during school, and for some residual, anxiety impedes their learning and performance seriously, especially during the test."

Mathematics anxiety is an anxiety that arises when interacting with mathematics. Ashcraft [11] says mathematical anxiety is a feeling of tension, anxiety or fear that interferes with mathematical performance. Students who experience mathematical anxiety tend to avoid situations where they have to learn and do math.

Anxiety is a normal symptom that occurs. Anxiety is considered as one of the inhibiting factors in learning that can interfere with the performance of one's cognitive function in concentrating, remembering, conceptual formation, and problem solving. Mathematical anxiety is a type of disease, mathematical anxiety refers to an unhealthy mood such as the response that occurs when some students experience mathematical problems and manifest themselves with panic and loss of mind, depression, and helplessness, nervousness and fear, etc [6].

Student anxiety can be recognized through a review of the three components, the psychological components of anxiety, nervousness, anxiety, anxiety, insecurity, fear, shock, physiological components of heart palpitations, cold sweat in the palm, elevated blood pressure, and partly, Indicated by the individual the environment in the form of behavior and sleep disorders [12]. According to Anggreini [13], there are three forms of anxiety symptoms of students in the face of lessons, namely physical symptoms, such as tense while doing math problems, nervous, sweaty, trembling hands when having to solve math problems or when starting math lessons.

Wahid [14], Result indicated that emotional factor was the highest score related to math anxiety followed by environmental and assessment factors. Study also revealed that students' performance much depends on math anxiety, which means that the higher score in math anxiety cause lower score in math performance.

Seng [15], The data revealed that there was a positive correlation between mathematics test anxiety and numerical anxiety on students' mathematics achievement. Results of the multiple regressions showed that all the variables of mathematics anxieties were statistically significant on students' mathematics achievement.

With respect to Bandura's social-cognitive theory [16], on one hand, anxiety or physiological arousal is one of the four sources of self-efficacy and on the other hand it is formed by the sense of weak self-efficacy in responding to the environmental demands. In classroom environment, type of goals which is emphasized by teacher, can be considered as on the most important environmental demands.

### **3. Methods**

This research is a qualitative descriptive. Kothari [17] said that a qualitative descriptive research is the basic types of research that major purpose is description of the state of affairs as it exists at present. The sample of this study were 30 students of class X AK in SMK Ar-Rahman Medan. The instrument used in this study is a questionnaire about student anxiety adopted from Wahid [14]. Questionnaire contains 15 questions divided into 3 parts. There are three factors has been considered under mathematics anxiety named emotional, assessment and environmental factors. In analyzing the questionnaire, documentation, and interview data are done through three steps, namely data reduction, data presentation and conclusion. The questionnaire assessment was measured using 4 types of student responses: 1 = strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree.

**4. Result**

Based on the data obtained from the questionnaire, the following results are obtained. From the three tables above can be seen that the assignment is the first factor of anxiety assesment by students on mathematics that is equal to 39.3% followed by emotions of 36% then by environmental factors of 34%.

**Table 1:** Emotion

Emotions	Strongly agree	Agree	Disagree	Strongly agree
I feel like I have no control over my grades in math.	7	19	3	1
I get emotionally upset when doing or thinking about math	12	5	7	6
My stomach gets physically upset when doing or thinking about math.	6	12	8	4
I get sweaty or clammy hands when doing or thinking about math.	10	8	5	7
My stomach gets physically upset when doing or thinking about math	7	10	9	4
Frequence	42	54	32	22
Percent	28%	36%	21,3%	14,7%

Table 1 shows the emotional factors. It can be seen that the percentage of those who answered agreed to have a value of 36% means that emotions really determine the normal level of things. In this case it is mathematics.

**Table 2:** Assesment

Assesment	Strongly agree	Agree	Disagree	Strongly agree
I feel like I need to prepare much more for math tests than for other subjects	17	6	3	4
have trouble concentrating during math tests.	12	10	4	4
I do not feel confident when taking math tests no matter how much I study.	12	5	8	5
I feel that I am not confident with my idea/ method of solution during math tests.	10	7	3	10
I generally feel that tests in any subject are a reflection of my worth as a person.	8	6	10	6
Frequence	59	34	28	29
Percent	39,3%	22,7%	18,7%	19,3%

Table 2 shows the assignment factor. This assignment factor is a major factor of the three factors that determine the anxiety level of students who have a percentage of 39.3%. This means that students' math anxiety is greatly influenced by external factors of teachers. Assignments are given by the teacher so that the teacher is an important subject in terms of controlling student anxiety.

**Table 3:** Environment

Environment	Strongly agree	Agree	Disagree	Strongly agree
I feel that I will never be able to learn math no matter how hard I try.	15	4	6	5
I feel that others have a more "mathematical" or "logical" mind than I do.	11	9	7	3
My parents and/or friends tell me about their own struggles and frustrations with math.	8	7	5	10
I have had math teachers that I really disliked for one reason or another.	7	3	12	8
I feel like I have never really understood math and I am faking my way through it.	10	5	8	7
Frequency	51	28	38	33
Percent	34%	18,7%	25,3%	22%

Table 3 shows environmental factors. Environmental factors are the third or final factor in determining the student's anxiety level. Where this factor has a percentage of 34%. This means that environmental factors such as opinions of previous people such as friends or family can not increase the level of students' math anxiety.

### 5. Discussions

Based on the analysis of the questionnaire results that have been given, students of class X ak SMK Ar-Rahman have the main level of anxiety caused by the assignment factor then followed by emsi and last by the environment. This is in accordance with the results of Denhere's research [9], and Olaniyan and Medinat F. Salman [7] which states that there are many factors can cause mathematical anxiety. In this case means that there is a role of teachers that greatly support the level of students' mathematical anxiety.

Results research in accordance with the opinion of George Brown College [18] which mentions That poor pedagogy as one of the factors causing mathematical anxiety. The results of this study also in accordance with the opinion of Whyte and Anthony Glenda [19]. That mathematical anxiety can be caused by the teacher, which is weak Ability in delivering learning materials so that the material Feels difficult for students to understand.

Weak ability of teachers in delivering material include election learning methods that are less in line with student learning styles. Research result Ranjan and Gunendra Chandra [20], Denhere [9], and Olaniyan and

Medinat F. Salman [7] mentions that learning methods are less in line with Students can cause mathematical anxiety.

In this case the teacher needs to introspect how the style of teaching while in the classroom. Because as expressed by Brown College [18], mathematical anxiety is a feeling of distress affecting the ability of mathematics, negative attitudes toward mathematics or feel less confident in mathematics. Mathematical anxiety adversely affects the implementation and results of mathematical learning.

## **6. Conclusions**

Based on the results of research conducted at SMK Ar-Rahman, it can be concluded that the level of mathematical anxiety is influenced by three factors. Where the most determining factor of student anxiety level is the assignment factor. This can be seen from the questionnaire that many answered strongly agree on the assignment of 39,3%. So the assignment factor is closely related to the teacher so that the teacher here needs a self-introspection in doing the teaching.

## **7. Limitations**

The limitation of this study is:

- The study is only conducted on one school so that representation of the analysis of math anxiety students in grade X SMK in Indonesia is not available.
- The study only uses questionnaire whom given to the students and doesn't compare the questionnaire results with the implementation plan of learning made by teacher, sSo we can know the level of student's mathematical anxiety.

## **8. Suggestions**

Based on conclusion and limitation of this study, we have suggestion for teachers to adapt their teaching model's to mathematics course, student characteristic and curriculum that implemented in their country to reduce the level of student mathemamtical anxiety . And for other researchers who are interested in researching similar things, it is advisable to expand the scope of the research so that the results obtained research more generalize.

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