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Analysis of Learning Difficulties of Class XI Students at SMK Muhammadiyah Kotabumi

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Abstract

This study is meant to describe: (a) Difficulty in learning mathematics in eleventh grade, (b) the reasons behind those difficulty faced by the students eleventh grade, (c) Teachers' efforts to overcome the difficulties of learning mathematics in eleventh grade, (d) Large The level of difficulty in learning mathematics experienced by eleventh graders. This type of research is a type of qualitative research. Difficulties experienced by students are difficulty understanding concepts, difficulties in skills, and difficulties in solving problems Data collection methods used were interview and test methods. Research shows that: (1) Difficulty understanding concepts, difficulties in skills, and difficulties in solving problems. (2) The causes of those difficulty in learning comes from social, emotional, and intellectual of students themselves. (3) Teacher's efforts to overcome learning difficulties by holding remedial. (4) The level of learning difficulties of students included in the category is very difficult. It is hoped that the teacher can overcome student learning difficulties. So that students' difficulties in learning mathematics are slightly overcome.

Keywords: *Difficulty, Learning, Mathematics.*

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan: (a) Kesulitan belajar matematika siswa kelas XI, (b) Faktor penyebab kesulitan belajar matematika siswa kelas XI, (c) Upaya guru untuk mengatasi kesulitan belajar matematika kelas XI, (d) Tingkat kesulitan dalam pembelajaran matematika yang dialami siswa kelas XI. Jenis dalam penelitian ini adalah jenis penelitian kualitatif. Metode pengumpulan data yang digunakan adalah metode wawancara dan tes. Hasil Penelitian menunjukkan bahwa: (1) siswa kesulitan memahami konsep, kesulitan dalam keterampilan, dan kesulitan memecahkan masalah, (2) Faktor-faktor yang menyebabkan peserta didik mengalami kesulitan dalam belajar yaitu faktor sosial, emosional, dan intelektual. (3) Upaya guru mengatasi kesulitan belajar dengan mengadakan remedi. (4) Tingkat kesulitan belajar siswa termasuk dalam kategori sangat sulit. Diharapkan guru dapat mengatasi kesulitan belajar siswa. Sehingga kesulitan siswa pada pembelajaran matematika sedikit teratasi.

Kata Kunci: Analisis, Belajar, Kesulitan, Matematika, Siswa SMK,



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1. Background

Education is a human need throughout his life without human education it will be difficult to develop even underdeveloped, therefore education plays an important role in life. Related to the importance of education, mathematics is the basic knowledge that students need to support their learning success in order to pursue higher education. According to some researchers said that the aim of mathematics education is to actualize student learning at the highest level (Carragher et al., 2008; Galbraith & Stillman, 2006; Kaiser & Schwarz, 2006).

Mathematics is widely used in various ways of life, it is hoped that learning mathematics in class can be packaged in such a way that students can learn optimally and ultimately get maximum results. For this reason, various efforts or efforts are needed so that mathematics education can be absorbed easily by students. Principles, namely methods of mathematical tools widely used to be able to help humans in their daily lives, such as calculators, computers, and others (Abdusselam et al., 2018; Salehi et al., 2014).

Some people think of mathematics as an activity that is carried out only to add, subtract, and divide or activities related to solving calculation problems presented in the form of questions. In essence, mathematics covers a wider field than the application of numbers, mathematics also includes matters relating to measurement, money, patterns, geometry, statistics, and problem solving. Some students at SMK Muhammadiyah have difficulty learning mathematics, while some other students learn mathematics easily without experiencing difficulties.

Based on the description above, learning difficulties in mathematics can be interpreted as an internal disturbance experienced by students who do not understand the subject matter of mathematics taught at school. The characteristics of students who have difficulty learning mathematics differ from one student to another. Thus, the efforts to deal with students who have learning difficulties in mathematics given by the teacher are different for each student who has learning difficulties. Mathematics learning difficulties experienced by students must be handled appropriately so that students can learn mathematics well. This is because mathematics is an important branch of science to learn.

2. Research methods

2.1 Konteks

In this study used a qualitative method with a descriptive approach. This study aims to determine the types of mathematical difficulties experienced by students, the causes of mathematics learning difficulties, and to reveal efforts that can be made to overcome mathematics learning difficulties in class XI at SMK Muhammadiyah Kotabumi.

Qualitative research is research that intends to understand phenomena about what is experienced by research subjects, for example behavior, perceptions, motivations, actions, etc., holistically, and in a descriptive way in the form of words and language, in a specific context that naturally by utilizing scientific methods.

2.2 Participant

This research was conducted at SMK Muhammadiyah 160 Kampung Baru, Kotabumi, North Lampung. When the research was conducted in November 2021. The subjects in this study were class XI teachers, teachers were chosen because they played a major role in learning at school. Researchers conducted interviews with class XI teachers to find out the difficulties in learning mathematics and the

efforts that have been made to overcome difficulties in learning mathematics. Furthermore, the subjects of this study were students of class XI at Muhammadiyah Vocational School, totaling 22 students.

2.3 Data collection technique

Data collection techniques using interviews and tests. While the data analysis technique used is to use qualitative data analysis. Data analysis in a study is the main subject in a study because by conducting an analysis it will be possible to obtain results from any difficulties in learning mathematics based on the group through interviews and test techniques. Researchers tested the credibility of the data with triangulation techniques. Technical triangulation means that researchers use different data collection techniques to obtain data from the same source.

3. Results and Discussion

3.1 Math Learning Difficulties

a. Difficulty Understanding Concepts

The concept refers to the basic understanding of students. In this study, students experienced difficulties in understanding concepts, namely difficulties in the concept of changing mixed fractions into ordinary fractions, as well as addition and multiplication of fractions. This difficulty is shown when students cannot work on questions about compositional functions and inverse functions. These conditions are found in the research of Betha Susanti & Yuni Afrian Putri Lestari (2019) regarding the analysis of learning difficulties in mathematics with the conclusion that students' difficulties are less skilled at solving compositional and inverse function questions and difficulty solving problems in the given questions.

b. Calculation Skill Difficulty

Skill refers to something that someone does. This type of math skill is the process of using operations in addition, subtraction, multiplication, and division. Difficulties in arithmetic operations can occur because students make mistakes in operating numbers incorrectly. Errors in operating numbers were found by researchers when working on functional composition material problems. In accordance with the opinion of Jamaris (2015) that one of the difficulties experienced by students who have difficulty learning mathematics is weakness in arithmetic caused by misreading symbols and operating numbers incorrectly.

Students' difficulties in arithmetic skills are also due to their mastery of basic numeracy skills such as substitution, elimination and so on. These difficulties should be of more concern to the teacher so that student difficulties do not continue so that students can achieve good learning outcomes. In addition, students also have difficulty in calculating skills because they are not careful when calculating according

to the opinion of Runtukahu & Kandou (2014) that students who have difficulty learning mathematics often make mistakes in counting.

c. **Trouble Solving Problems**

Problem solving is the application of concepts and skills. The development of indicators of problem solving is indicated by students not continuing the work in solving problems. The results of the analysis of the difficulty of solving problems on functional composition questions show that students are unable to interpret the sentences in the questions given and cannot determine the formula according to what is requested in the problem, so they cannot solve the problem correctly. An example of a case found is that students do not work on questions according to the information contained in the questions with the information available. As stated some researcher that children who have difficulty learning mathematics are characterized by a lack of understanding of the language of mathematics (Brijlall & Ndlovu, 2013; Kaur et al., 2021; Nurrahmawati et al., 2021).

This lack of understanding resulted in students experiencing difficulties in making meaningful mathematical relationships. As happened in solving the problem of counting questions presented in the form of a story (Bintoro et al., 2021; Zuriah, 2021). Based on the theory and research results, it was found that the types of mathematics learning difficulties experienced by students were difficulty understanding the concept of fractions, difficulty in calculating fractions, and difficulty solving problems in word problems.

3.2 Factors Causing Difficulty in Learning Mathematics

After finding the types of learning difficulties experienced by students, then the factors that cause learning difficulties in mathematics will be discussed. Analysis of the factors causing students' learning difficulties in mathematics was carried out by analyzing the results of the interviews. After analysis, it can be seen that the causes of student learning difficulties are caused by internal factors and external factors. To find out each of the factors that cause learning difficulties in mathematics is explained as follows.

a. Factors Causing Difficulties Internally

1) **Attitude in Learning**

The results of the analysis of the factors that cause difficulties internally are in accordance with what was revealed by Slameto (2010) that the factors that influence learning outcomes are attitudes. A positive attitude towards a subject is a good start for the learning process. On the other hand, a negative attitude towards subjects will potentially cause learning difficulties or make learning outcomes less than optimal.

From the student statements in the interview results, students did not like mathematics and had a negative attitude towards learning mathematics so that students did not follow the lesson well. This

attitude is shown by acting noisy and not paying attention when learning mathematics takes place. In addition, a negative attitude is also shown by students who do not analyze, students tend not to be active in learning.

The attitude of students in learning mathematics is influenced by the attitude of the teacher who teaches. Teachers teach with fun and pay attention will lead to a positive attitude for students. So that students follow the learning well. This is in accordance with the results of Paul Mutodi's research (2014) that psychological factors affect student achievement and their general practice. For this reason, teachers need to instill positive attitudes towards students through fun learning mathematics, as well as giving confidence to students that the benefits of learning mathematics are expected to emerge positive attitudes in mathematics lessons.

2) Learning Motivation

Motivation functions to direct students' actions in learning. The results of the analysis show that students' learning motivation is still low. Students do not prepare stationery and math textbooks when learning mathematics begins. Students also do not review material that has been taught at school when they are at home and students do not study mathematics when there are no tests. Low student motivation also results in students not being enthusiastic about participating in mathematics learning, causing difficulties in learning mathematics (Namaziandost et al., 2020; Olivero & Robutti, 2007). This is in accordance with some statement said that students with weak motivation seem indifferent, easily discouraged and their attention is not focused on the lesson as a result of which they experience many learning difficulties (Mutia, 2017; Susandi et al., 2019; Sutrisno, 2015).

Low student motivation is suspected because motivation from within students is not instilled properly by parents at home. Parents who do not pay maximum attention will have an impact on low student learning motivation at school. Motivation from within the students themselves or intrinsic motivation affects student learning outcomes. Giving motivation has been done by the teacher orally by giving examples of attitudes that need to be imitated in order to be successful in learning. For this reason, teachers and parents need to pay more attention and work together to always increase student motivation so that students do not have difficulty learning mathematics.

3) Intelligence (IQ)

Individual success in learning various knowledge is also determined by the level of intelligence. If someone has studied a science, but the intelligence of the individual concerned is lacking, then the knowledge he has learned will still not understand.

b. Factors Causing Difficulties Externally

1) Use of Learning Media

Class XI teachers at Muhammadiyah Vocational Schools have realized the importance of the media as a means of preparing information so that students can more easily understand the material being taught. However, the obstacles found in the field are the teacher's lack of understanding of innovative learning media that are appropriate to the material, such as the teacher has not found a suitable media for teaching function composition and inverse function material so that the material is explained through analogy (Sujito et al., 2019; Vamvakoussi, 2017). The teacher's lack of understanding of innovative learning media has an impact on students' lack of understanding of concepts because there are no concrete examples that help students to more easily accept material (Hsu et al., 2020; Lean & Clements, 1981). The media used by the teacher is media that is less innovative and interactive, therefore the teacher should always add knowledge about innovative and interactive learning media that can be used to increase student motivation and make it easier for students to accept the material being taught (Green, 2021; Suswandari et al., 2017; Khoerul Umam et al., 2017).

2) Facilities and Infrastructure in Schools

Facilities and infrastructure in schools have supported the learning of mathematics. The condition of the building can be said to be good because the building used is a permanent building so it is safe for learning. Classrooms at Muhammadiyah Vocational Schools are not equipped with air ventilation which allows air exchange so that the class is stuffy and makes learning uncomfortable. Schools need to control the facilities in the classroom, such as the completeness and feasibility of classes, such as being ventilated over a fan so that it is not too stuffy and hot so that students can still study comfortably.

3) Family Environment

The family is the first educational center for students. Guidance from parents and attention from parents is an important factor in the success of student learning (Axelsson, 2009; Lien et al., 2021). From the results of the analysis conducted, it is known that students with indications of learning difficulties in mathematics do not always receive attention from their parents at home. Lack of attention from parents is caused because parents are busy working so they pay less attention to children's studies at school. One example of the lack of attention from parents is that students often do not do the homework given. This is in accordance with the statement that children who do not get supervision or guidance from their parents are likely to have many learning difficulties (Blomhøj & Kjeldsen, 2006; Mutia, 2017; K. Umam et al., 2019).

A good relationship between parents and students needs to be built so that parents always understand the needs and difficulties experienced by students. Good relationships can be built by communicating and taking the time and accompanying students in learning. In addition, parents need to communicate regularly with teachers about their child's learning progress at school so that learning difficulties experienced by students can be overcome.

Based on the theory and results of the research, it was found that the proposition that the factors causing learning difficulties in mathematics consisted of internal factors and external factors. While external factors originating from outside students include the use of instructional media that is not optimal, school infrastructure, and family environment.

3.3 Efforts to Overcome Difficulties Learning Mathematics

After discovering the difficulties experienced by students and the factors that cause student difficulties, then we will discuss efforts to overcome learning difficulties in mathematics. Analysis of learning difficulties in mathematics for class XI at SMK Muhammadiyah Kotabumi was carried out by analyzing the results of interviews conducted with class XI teachers. In this case the researcher did not make an effort to overcome the difficulty of learning mathematics, but the researcher described the efforts that had been made and provided suggestions for overcoming the difficulty of learning mathematics. Learning difficulties experienced by students are difficulties in understanding concepts, difficulties in skills, and difficulties in solving problems. While the factors that cause learning difficulties in mathematics consist of internal factors including attitude, motivation, and intelligence (IQ), external factors include the use of learning media, school infrastructure, and family environment.

To find out the efforts that can be made to overcome learning difficulties are explained as follows.

a. Increase practice questions

One of the students' learning difficulties in mathematics is difficulty in skills and difficulty in solving problems. To overcome difficulties in skills and solve problems, it is necessary to practice and practice continuously. This refers to Thorndike's theory which emphasizes giving lots of practice and practice (drill and practice) to students so that they can master concepts and procedures well (Alim et al., 2015; Junaedi et al., 2021; Schukajlow & Leiss, 2011). For this reason, the teacher needs to provide more practice questions to students who have difficulty learning mathematics because the more they practice, the more students will understand. How to provide more practice questions does not have to be done in class, practice questions can be given as homework to further monitor the development of students' abilities.

b. Using Concrete Learning Media

Based on the results of the analysis that has been carried out, the teacher does not always use concrete learning media in learning so that students do not understand the concepts being taught well which results in students having difficulty understanding the concepts. Based on the theory and research results, it was found that the proposition that efforts can be made to reduce the difficulty of learning mathematics is based on the difficulties experienced and the underlying factors, including using concrete learning media, increasing practice questions, and collaborating with parents of students.

c. Cooperate with Parents

Internal factors that cause mathematics learning difficulties originating from students include attitudes, motivation, physical health, and sensory abilities. Based on the results of the analysis that has been done, parents have an important role in providing motivation for students. Students who are given good attention at home will have good learning motivation at school. For this reason, parents need to always pay attention to the development of students' mathematics learning.

Parents and teachers need to work together to increase student motivation. Increasing student motivation by teachers can be done with suggestions from as follows using verbal praise such as saying the words "good", "good" after students perform the desired behavior is a great motivator (Ferdiani et al., 2021; Muir & Geiger, 2016). Use tests in grades wisely, namely to provide information to students and to assess student mastery and progress, not to punish or compare them with other students. Misuse of tests and grades will result in a decrease in students' desire to do well. Arouse students' curiosity and their desire to explore. Use games that involve students directly in the learning process. Based on the theory and research results, it was found that the proposition that efforts can be made to reduce the difficulty of learning mathematics is based on the difficulties experienced and the underlying factors, including using concrete learning media, increasing practice questions, and collaborating with parents of students.

4. Conclusion

Based on the results of research and discussion of the analysis of learning difficulties in mathematics for class XI at SMK Muhammadiyah Kotabumi, the following conclusions are obtained that mathematics learning difficulties experienced by students consist of three components, namely difficulties in understanding concepts, difficulties in skills, and difficulties in solving problems. Factors that cause learning difficulties in mathematics come from internal factors and external factors. Internal factors include students' attitudes in learning mathematics, low student learning motivation, low student intelligence (IQ). While external factors include the use of instructional media that is not optimal, school infrastructure, and family environment. Efforts that can be made by the teacher to reduce the difficulty of

learning mathematics is by remedial on material that students have not mastered. The difficulty level of learning mathematics for class XI students of SMK Muhammadiyah Kotabumi is included in the very difficult category.

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Konflik Kepentingan

Penulis menyatakan tidak ada konflik kepentingan

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