

## Analysis of Difficulties in Learning Mathematics Material for Measuring Units of Weight in Class III Elementary School Students

Yulianda Ghrace Silalahi<sup>1</sup>, Evi Ariyanti Marlina Sihombing<sup>2</sup>, Aminah Lubis<sup>3</sup>, Anita Yus<sup>4</sup>

<sup>1,2,3,4</sup> Universitas Negeri Medan, Indonesia

[Yulighrace16@gmail.com](mailto:Yulighrace16@gmail.com), [evisihombing86@gmail.com](mailto:evisihombing86@gmail.com), [aminahlubis25@gmail.com](mailto:aminahlubis25@gmail.com)

### Abstract

*This research aims to determine students' difficulties in learning mathematics and the factors that make students have difficulty learning mathematics. This research uses a qualitative approach with a qualitative descriptive research method which aims to describe students' difficulties in learning mathematics. The subjects of this research were ten students in class III at SD Negeri 104246 Jati Baru. The results of this research show that the tendency of difficulties experienced by students is conceptual difficulties, where students do not fully understand the concept of weight units, where when moving from one particular weight unit to another weight unit they do not understand whether multiplication or division.*

### Keywords

*Unhealthy Learning;  
Unhealthy Factors; Weight  
Units*



## I. Introduction

Education in schools, as the main institution in building human resources, must clearly play a role in shaping students into national assets, namely human resources who have professional, productive and independent abilities in facing increasingly fierce competition. Therefore, the 2006 curriculum, which is also competency-based, is adapted to society's demands and tends to develop knowledge in the future. This is in line with Minister of National Education Regulation Number 23 of 2006 that: Elementary School aims to lay the foundation of intelligence, knowledge, personality, noble morals and skills for living independently and pursuing further education.

Education is a process that is necessary to achieve balance and perfection in the development of individuals and society. The emphasis of education compared to teaching lies on the formation of awareness and personality of individuals or society in addition to the transfer of knowledge and expertise. With this kind of process, a nation or state can pass on religious values, culture, thoughts and skills to the next generation, so that they are truly ready to welcome a brighter future for the nation and state. Education is also an activity that has a specific aim or objective which is directed at developing the potential that humans have both as humans and as a society to the fullest (Nurkholis, 2013).

Article 1 of the National Education System Law no. 20 of 2003 states that the National Education System is all educational components that are interconnected in an integrated manner to achieve national education goals. Departing from the sound of this article, it can be seen that education is a system which is a totality of structures consisting of components that are interrelated and together lead to the achievement of goals (Soetarno, 2003: 2). The components of national education include the environment, infrastructure, resources and society. These components work together, are interrelated and support each other in achieving educational goals (Munirah, 2015).

Elementary schools are institutions managed and regulated by the government which operate in the field of formally organized education which lasts for six years from grade one to grade six for students throughout Indonesia. Elementary school as formal education for the nation's next generation of children is packaged based on national character and culture which is then determined through the curriculum. Then from this curriculum the wheels of education are driven and run. In practice, education in elementary schools is given to students with a number of materials or subjects that they must master. These subjects include, among others, religious education, citizenship education, Indonesian language, natural sciences, social sciences, mathematics, physical education and sports, arts and culture and crafts, as well as additional selected local content subjects adapted to each region. -each.

Mathematics is a subject taught at various levels of education starting from elementary school, middle school to university level which has an important role in various scientific disciplines and advances human thinking. It is hoped that mathematics learning in class can be packaged in such a way that students can learn optimally and ultimately get maximum results. Mathematics learning will be more effective if the teacher facilitates students to find ways to solve problems by applying meaningful learning such as the teacher's attitude and teaching style, using strategies and teaching methods that are appropriate to current conditions in the classroom, using more varied learning media, and linking learning material with students' daily knowledge and experiences (Sutarto & Syafruddin, 2013:38)

The reality in the field that mathematics learning activities have a higher level of difficulty compared to other subjects is proven by lower mathematics learning outcomes compared to other subjects. As stated by Abdurrahman (in Tyas, 2016) that of the various fields of study taught in schools, mathematics is the field of study that is considered the most difficult by students, both those who do not have learning difficulties and especially students who experience learning difficulties. This can be seen when the learning process takes place, the lack of interest and attention of students towards learning mathematics, students also passively interact with the teacher compared to interacting with their peers. Apart from that, learning activities use more conventional methods and there is less use of media and teaching aids.

Based on the daily test score data obtained, it is stated that the minimum completeness criteria (KKM) score for mathematics subjects at SD Negeri 104246 Jati Baru is 75. Of the total number of class III students, 30 students got a low average daily test score. If left untreated, mathematics learning difficulties experienced by students will have bad consequences for students.

Students will become less interested in studying mathematics. Mathematics will continue to be the most avoided subject for students. Students also get bored more easily and become bored easily in learning mathematics. Therefore, learning difficulties faced by students should be detected early. Difficulty learning mathematics will begin to appear when children are in elementary school. So immediate understanding and response is needed for students who have difficulty learning mathematics. There are many factors that influence difficulties in learning mathematics, such as lack of interest and motivation in studying mathematics, and lack of support from parents and the surrounding environment in mathematics lessons for students due to a lack of understanding of mathematics by parents and the environment. So students who have difficulty learning mathematics should be given good support and motivation so that they are able to participate in mathematics learning and enjoy mathematics.

## II. Literature of Review

### 2.1 Study

According to Purwanto (2017:85) Learning is in behavior, where changes can lead to better behavior, but there is also the possibility of leading to bad behavior. To be called learning, the change must be relatively steady; must be the end of a fairly long period of time. How long the period lasts is difficult to determine with certainty, but the change should be the end of a period that may last days, months or years. The same thing was said by Gagne (Slameto, 2021:10) Learning is a change in disposition or ability that a person achieves through activity. These changes in disposition are not obtained directly from a person's natural growth process. However, it occurs through a process where an organism changes its behavior as a result of experience.

Same opinion Slameto (2016:2) Learning is a process of effort carried out by a person to obtain a new change in behavior as a whole, as a result of his own experience in interactions with his environment. There are many changes that occur in a person, both in nature and type, therefore of course not every change in a person is a change in the sense of learning. If a child's hand becomes crooked because it was broken by a car, such changes are not classified as changes in the meaning of learning.

### 2.2 Difficulty learning

Djamarah (2015:235) states that learning difficulties or learning disabilities are a condition where students are unable to learn normally, due to threats, obstacles or learning disorders. Wiyartimi (in Yulia 2017) stated that students who experience difficulties learning mathematics can be identified through students' difficulties and errors in working on mathematics problems including difficulties in reading and understanding the meaning of the questions, difficulties in understanding concepts, errors in using formulas or using notations and symbols, difficulties in skills. process, and errors due to carelessness. Abdurrahman (2013: 4) states that learning difficulties can be said to be a deficiency in one or more academic fields, either in specific subjects such as reading, writing, mathematics and spelling or in various more general skills. From Abdurrahman's opinion, it can be understood that the learning difficulties experienced by students are deficiencies that students have both in academic and non-academic fields. Deficiencies in understanding part or all of the material that has been taught or deficiencies in skills that are not related to academics, for example drawing skills and other skills. Another definition of learning difficulties is expressed by Ahmadi & Supriyono (2013: 77) who state that learning difficulties are a situation where students cannot learn as they should, that is what is called learning difficulties.

From the opinions of Ahmadi & Supriyono that have been presented, it can be seen that the learning difficulties experienced by these students are not always caused by low intelligence factors, but can also be caused by non-intelligence factors. Thus, a high IQ does not necessarily guarantee learning success.

### 2.3 Mathematics learning

Mathematics learning is a universal science that underlies the development of modern technology, which has an important role in various disciplines and advances human thinking. The rapid development in the field of information and communication technology today is based on Juniati's mathematical developments (Tutik, Sarah and Nur 2019:3). In line with this opinion, Susanto (2016: 185), said that learning mathematics in the world of work is to provide support in the development of science and technology.

Mathematics as a basic science needs to be mastered well by students, especially from elementary school age.

According to Rahmah (2013: 3), mathematics is a language of symbols; mathematics is a numerical language; mathematics is a language that can eliminate the vague, compound and emotional nature; mathematics is a method of logical thinking; mathematics is a means of thinking; mathematics is the science of quantity and magnitude; mathematics is a science that works to draw necessary conclusions; mathematics is a purely formal science; mathematics is a science that manipulates symbols; mathematics is the science of numbers and space; mathematics is the science that studies the relationship of patterns, shapes and structures; Mathematics is an abstract and deductive science and mathematics is a human activity. The same thing was also said by Tutik, Sarah and Nur (2019:6) who defined that learning mathematics at school is very important for training students' thinking patterns.

The weight unit is one of the standard units used to measure the mass (weight) of certain objects or objects. The weight of objects being measured also has different masses, and it is not uncommon for measurements to be taken to determine the weight or mass. One of the standard units for measuring weight is the kilogram (kg). Some units that are included in the commonly used weight units are: Tons, Quintal, Kilograms (kg), Hectogram (hg), Grams (g), Decagram (dag), Centigram (cg), Decigram (dg) And Milligrams (mg). Not only that, there are other units of weight called ounces (100 g = 1 hg) and pounds (5 ounces).

The unit weight ladder is also not difficult to use, according to the picture, the easy formula is:

- If you go down one flight of stairs, the known weight is multiplied by 10.
- If you climb one flight of stairs, divide the known weight by 10.

So if you look at it from quintals to kilo grams (kg), it goes down 2 steps. To find 1 quintal how many kg, simply multiply by 10 as the number decreases ladder. Because from quintals to kg down 2 steps can be calculated as follows:

$$1 \text{ quintal} = 10^2 = 10 \times 10 = 100 \text{ kg}$$

$$\text{So } 1 \text{ quintal} = 100 \text{ kg}$$

The weight unit ladder is generally used to calculate or convert weight units, for example, if you know the weight of an object is 1 kg, then want to know what the weight is in other units, then you can use this weight unit.

### III. Research Method

This research uses a qualitative approach with a qualitative descriptive method which is in accordance with the research objectives, namely describing the analysis of mathematics learning difficulties in class III. This research was conducted at one of the elementary schools in Tangerang City. The subjects of this research were class III students at SD Negeri 104246 Jati Baru, totaling 30 students.

The procedures in this research include initial observations, initial interviews, research observations, research interviews, tests, and documentation. The data collection techniques in this research are divided into two, namely, data collection techniques for mathematics learning difficulties among students using observation, interviews and test techniques. And data collection techniques on factors of mathematics learning difficulties in students using observation, interview and documentation techniques. For more details, see the table:

**Table 1.** Data collection technique.

No	Data taken	Data source	Source person	Attachment
1	Difficulty learning	Observation	Student	Observation Guidelines
		Interview	Student	Observation Guidelines
		Test	Student	Question
2	Factors causing difficulties in learning mathematics	Observation	Students and Teachers	Observation Guidelines
		Interview	Students and Teachers	Observation Guidelines
		Documentation	Students and Teachers	Photo

From the results of the tests that have been carried out, it is known that there are students who have learning difficulties. These difficulties can be identified based on the results of observations, interviews and tests that have been carried out. Data obtained based on the results of observations, tests and interviews showed that students experienced difficulties in reading and understanding questions, understanding concepts and understanding the process of measuring weight units.

Difficulty in reading and understanding the meaning of the questions. The teacher revealed that students understood and were able to comprehend the material and the meaning of the questions given, but in reality there were still many students who did not understand the meaning of the questions given and the teacher also revealed that there were still students who were not fluent in reading, there were even some students who did not know letters or numbers. Therefore, students have difficulty reading and understanding the meaning of the questions given.

Difficulty in understanding concepts. The teacher revealed that some students had difficulty understanding the material they had studied. The concept of measuring units of weight is not mastered by students, it can be seen that students are still confused about solving the questions given, where students do not understand how to calculate. Same. This can be seen from the results of diagnostic tests carried out by students related to fraction calculation operations.

Difficulty in process skills. When students have difficulty in the process of working on the story questions given, the students' answers will be wrong. For example, students who work on converting kilograms to tons, there are several students who make mistakes or are mistaken in the process, where many students are confused about whether it is multiplied or divided and students make mistakes when working on questions because they are difficult and in a hurry.

The factors that cause students to have difficulty learning are attitudes and a desire to learn that are still low. Based on the results of interviews, it was found that the majority of students with learning difficulties had no interest in mathematics lessons, they considered mathematics lessons to be too difficult, often made them confused, there were too many formulas that had to be used and children really didn't like calculations. Likewise with the learning attitudes of students with learning difficulties, many of them do not pay attention to the teacher when explaining the material, they mostly chat with their classmates or play alone in their seats.

This is in accordance with the opinion of Ahmadi and Supriyono (2013: 83) that "a child's lack of interest in a lesson will result in learning difficulties". Students' low learning

motivation can influence students' learning attitudes. Students who have low motivation to learn do not have the enthusiasm to take part in mathematics lessons. Based on the interview results, it is known that students who have learning difficulties have low motivation. This can be shown in the interview results. Many of them admitted that they did not repeat the lessons they had learned, they only studied when there were tests, and they would disturb their friends if they felt bored at the time. The teacher is explaining mathematics material. Using media or tools that are appropriate to the material can help students understand concepts well. On the other hand, inappropriate use of media will result in students being less interested in paying attention to mathematics learning.

Based on the results of interviews, students who had learning difficulties admitted that the teacher never used learning media during lessons. Based on the results of interviews with students who had difficulty learning mathematics, it was found that several students admitted that their teachers never used media or teaching aids in weight unit measurement material. This results in students not being able to understand the concept of weight units perfectly so that students cannot solve the questions given correctly and experience difficulties. As stated by Ahmadi and Supriyono (2013: 90) stated that "less complete learning tools make the lesson presentation less good, giving rise to learning difficulties".

Students can certainly learn better and have more fun if a school can meet all of the students' learning needs. The problems that students face in learning are relatively small. Students' learning outcomes will certainly be better. Based on the results of interviews with students who had difficulty learning mathematics, it was found that they did not feel comfortable in their classrooms. Because the classroom is divided into two parts or two classes, the classroom atmosphere often feels noisy, causing their concentration to be broken. This is in line with what was stated by Ahmadi and Supriyono (2013:91) who said that "building or classroom conditions that do not meet the requirements will create an unfavorable learning situation so that learning is hampered".

#### **IV. Conclusion**

After discussing the data obtained from the research results, the researchers drew conclusions, namely:

1. There are students who have difficulty learning mathematics. These difficulties can be identified based on the results of observations, interviews and tests that have been carried out. Data obtained based on the results of observations, tests and interviews showed that students experienced difficulties in reading and understanding questions, understanding concepts and understanding the process of measuring weight units. Where students do not understand the meaning of the questions given and the teacher also reveals that there are still students who do not read fluently, there are even some students who do not know letters or numbers, therefore students have difficulty reading and understanding the meaning of the questions given, do not understand the concept of learning and the process work on the material.
2. Factors that cause students to have difficulty learning are attitudes and a desire to learn that are still low. Based on the results of interviews, it was found that the majority of students with learning difficulties had no interest in mathematics lessons, they considered mathematics lessons to be too difficult, often made them confused, there were too many formulas that had to be used and children really didn't like calculations. Likewise with the learning attitudes of students with learning difficulties, many of them do not pay attention

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