

Analysis Of Mathematics Learning Difficulties For Elementary School Students In Terms Of Cognitive Style

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Abstract

The aim of this research is to determine the learning difficulties experienced by students in studying mathematics lessons on multiplication material in terms of cognitive style. The research was conducted using descriptive qualitative research following the Miles and Hubberman model. The data collection techniques used are observation, interviews, tests and documentation techniques. The data analysis techniques used include data reduction, data presentation, and drawing conclusions. Checking the validity of the data using data source triangulation, technical triangulation, and time triangulation. This research was carried out for one month, to be precise in May 2023, with research subjects of 19 students and 1 teacher. The results of this research show that students have difficulty learning mathematics on multiplication material. Judging from the cognitive style, it can be concluded that (1) Students have not memorized multiplication 1-10, (2) The causes of students' difficulties in learning mathematics in multiplication material are lack of tutoring at home with parents, lack of practice in mathematics problems in multiplication material, (3) Teachers' efforts to overcome difficulties in learning mathematics. that is, the teacher always reviews the mathematics learning material on multiplication every morning before starting the lesson, the teacher holds quizzes or *games*.

Keywords: Cognitive Style , Learning Difficulties , Mathematics Learning

1 INTRODUCTION

In 2020, the corona virus pandemic occurred which caused students to have to do distance learning (PJJ) via Zoom , Google Meet, and Google Classroom . The learning that takes place is often ineffective for students because students become unfocused and less monitored by the teacher. Conditions like this are the same as the findings. Chrisnaji Banindra Yudha (2021) stated that Some students have difficulty implementing online learning because online learning is something new and unfamiliar . Difficult online mathematics learning during the pandemic resulted in low student learning outcomes, due to the lack of direct monitoring from teachers, and students were free from responsibility in learning and there was no guidance from their parents at home which resulted in various kinds of problems , such as students being lazy to open textbooks, students prefer playing with *cellphones*, and it makes students' memory weak because they don't study at home. According to Masroza (2013), learning difficulties are disorders that actually exist in children related to general or specific tasks, which are thought to be caused by neurological dysfunction, psychological processes or other causes so that children who have difficulty learning in a class show achievement. low learning. According to Jamaris (2015) the difficulties experienced by students who have difficulty learning mathematics are (1) Weakness in calculating, (2) Difficulty in transferring knowledge (3) Poor understanding of mathematical language (4) Difficulty in visual perception. According to Muhibbin Syah

(2013), the term *cognitive* comes from the word *cognition*, which is equivalent to knowing, which means knowing. In a broad sense, *cognition* is the acquisition, arrangement and use of knowledge. In subsequent developments, the term cognitive became popular as one of the domains or regions/realms of human psychology which includes every mental behavior related to understanding, consideration, information processing, problem solving, gaps and beliefs. According to Ety Mukhlesi Yeni (2015) Special learning difficulties are disturbances in one or more psychological processes that include understanding and using spoken or written language, these disorders may manifest themselves in the form of difficulties listening, thinking, speaking, reading, writing, spelling, or doing arithmetic.

One of the obstacles in learning mathematics is that most students consider mathematics to be a difficult, scary and boring subject because students do not practice questions enough and review what they have learned. So many students don't like learning mathematics and even make it a subject that they should avoid because they tend to like other subjects. On the other hand, students who do not understand mathematics lessons will be anxious because they experience difficulties when learning mathematics and will have difficulty understanding the material presented by the teacher, which will have an impact on decreasing mathematics learning outcomes. According Ayu Novitasari (2022), Overcoming difficulties in learning mathematics can be done in several ways, namely (1) changing learning models that can attract students' interest in learning (2) the use of interesting learning media according to the learning material

The results of the observation data are supported by the results of interviews with teachers, from the results of these interviews it is known that students begin to experience difficulties learning mathematics in class III because before entering class III students only learn online, the difficulties often experienced by students are difficulties when working on operations questions. calculate multiplication because many students are not able to understand the multiplication material, students tend to be confused when determining the results of multiplication story problems and students only answer questions by adding the numbers they are calculating, students also make mistakes when calculating, let alone calculating multiplication operations in a long sequence, and also the students' weak memory in memorizing multiplication.

The urgency of the research in this study is to determine the level of difficulty of students' mathematics learning, especially the material on multiplication calculation operations, because the material on multiplication calculation operations is always present in every mathematics story problem, and will always be studied anywhere, so that later when students have entered In class IV, they no longer experience difficulties and it makes it easier for them to study mathematics, material for multiplication calculation operations.

2 RESEARCH METHODS

According to Sugiyono (2018) states that qualitative research methods are often referred to as naturalistic research because the research is carried out in natural conditions (natural settings). The method used by researchers in this study is to use a descriptive research method with a qualitative approach. This qualitative descriptive research aims to describe, describe, explain, and answer in more detail the problems to be studied by studying as much as possible whether an individual, group, or phenomenon that occurs. The procedure for carrying out the research that will be carried out by the researcher uses descriptive research, namely through observation, interviews, tests and documentation.

In this study, researchers used data collection techniques in the form of observation, interviews, tests and documentation. The subjects in this research were class II I teachers and class III students, who were at MI Plus Arruhamaa, Cilodong, Depok City. Meanwhile, data analysis techniques using the *Miles and Huberman* Model include 1) data reduction, namely the process of selecting data that is focused on important things, so that it can produce clear and detailed information, 2) data presentation, namely presenting data by describing Mathematics Learning Difficulties Students with Multiplication Material Judging

from Cognitive Style 3) data verification or drawing conclusions, namely knowing the Analysis of Students' Mathematics Learning Difficulties with Multiplication Material Judging from Cognitive Style

3 RESULTS AND DISCUSSION

Research findings have been carried out by researchers by reducing data, so as to obtain research results. After reducing the data, the next step is to present the data, then the data is verified (drawing conclusions). Researchers will describe how difficult it is for students to learn mathematics in multiplication material in terms of cognitive style at MI Plus Arruhamaa, Cilodong, Depok City . Researchers collected initial data using instruments in the form of observation sheets, interviews and tests. When researchers carry out observations, researchers use tools in the form of *cellphones*, notebooks and field notes which researchers use to take notes and take pictures related to things during the research. When the researcher made observations in class, the researcher made observations for class III teachers and class III students.

3.1 Research Findings

Researchers conducted interviews with various informants. Next, the researcher took a sample of 5 (five) students according to the level of student learning outcomes during daily learning activities. Researchers took samples from students who had high scores, medium scores and low scores. Meanwhile, the other informants consisted of Class II I teachers, namely Mr. Muhammad Wahyuddin , S.Pd. I , The results of this interview are accompanied by documentary evidence that will help researchers to complete the data in this research. The data presented is raw data processed using a qualitative approach.

The research subjects conducted by researchers were class II I at MI Plus Arruhamaa . Class III is taught by a class teacher named Mr. Muhammad Wahyuddin , S.Pd.I. Class II I students consist of 19 people, including 14 male students and 5 female students. The following are the results of the research findings that the researchers did when they went directly to MI Plus Arruhamaa :

3.1.1 Difficulties in Learning Mathematics Multiplication Material Viewed from Cognitive Style

Based on the results of observations, interviews, and tests that have been carried out by researchers during research related to the Difficulty of Learning Mathematics Multiplication Material in View of Cognitive Style , it is known that Based on interviews with the class III teacher MI Plus Arruhamaa it is known that students still have difficulty counting multiplication because before entering class III students learn online when they are in grade 1 in the 2020/2021 academic year, the teacher always gives assignments of mathematics multiplication material repeatedly for students to get used to calculating multiplication, memorizing multiplication together before starting learning mathematics, the teacher also provides games before learning mathematics takes place, and there are still students whose learning must be assisted by approximately 3 to 4 children because they are still lacking in learning mathematics multiplication material, usually the teacher always approaches the desks of students who are lacking and are always left behind in learning mathematics .

Observations made by researchers in class III MI Plus Arruhamaa, it is known that when students have difficulty learning mathematics multiplication material in terms of cognitive style, students often ask their peers they are not fully confident, students are in a hurry to work on problems to finish quickly and collect the very first, some students always ask the teacher because they still don't understand the material being studied at that time, the teacher always gives assignments for each mathematics learning multiplication material takes place and memorizes multiplication together in class during mathematics learning but there are some students who have not been able to be independent in working on

multiplication material math problems and still have to be assisted by the teacher, namely there are 4 children out of 19 children, while 7 students are already independent but tend to still ask teachers or friends and still lack confidence in working on questions, and there are 7 participants students the rest they are independent in working on math problems but they are in a hurry in working on the questions so they are not careful and answer questions with wrong answers, students also sometimes forget to count in a long stack because they misplace the results of the multiplication and also forget the numbers already saved.

The researcher gave tests to students as many as 15 questions to ensure the ability of students, based on the test instruments given by the researcher to students found the fact that out of 19 students only 2 students answered all correctly, 5 of them were almost all correct but there some of the questions that were answered incorrectly, such as forgetting the flat formula, multiplying numbers incorrectly, and not being able to divide numbers, on average, many students were not careful in working on the questions because someone saw that their friend had finished first and he wanted to finish quickly too.

Based on the results of the researcher's interviews with students, the researcher found that all class III students already understood the multiplication symbol, 11 students stated that sometimes they still had difficulty when calculating multiplication, 16 students enjoyed learning mathematics, 1 of them was so-so and 2 other students were less like studying mathematics because they prefer other subjects such as English and BTQ, on average students still like to ask questions to the teacher or their classmates, all students are happy and interested if the teacher reviews mathematics learning multiplication material, 10 students are guided at home to study mathematics, 5 students admitted that they were only guided and studied when they were taking exams/retests, 2 students were rarely guided to study with their parents, and 1 student admitted that they only studied mathematics at school without any guidance at home with their parents, participant There are only 3 students who have memorized multiplications 1-10, there are 2 students who have memorized them but not yet, there are 2 students who have memorized multiplications 1-8, there are also 2 students who have just memorized multiplications 1-7, and the rest are 10 of their students only memorize multiplications 1-5, for students' interest in learning mathematics which is explained by the teacher, all students are interested because the teacher doesn't just explain, sometimes the teacher makes quizzes, games, or watches learning videos so that the children are enthusiastic and can like the lesson. mathematics, 15 students always listen to the teacher when the teacher explains the learning material in class while the other 4 students sometimes joke and sometimes do n't listen to the teacher when the teacher explains the learning material in class.

3.1.2 Causes of Difficulty Learning Mathematics Multiplication Material

As for the results of interviews with students in class III, researchers found data on the cause of students having difficulty learning mathematics on multiplication material , namely because they rarely practiced mathematics on multiplication material at home because at home there was no one to guide them so they only relied on learning at school which was taught by the teacher, the students admitting that he only studied mathematics when there was a test the next day, otherwise he didn't study .

Based on interviews with class III teachers, the teacher stated that the factor causing children's difficulties in learning mathematics multiplication material was that not all students had memorized multiplications 1-10, on average students only memorized multiplications 1-5, whereas for mathematics learning questions, there were sometimes a lot of multiplication material. multiplication 6-10, and there are some students who find it difficult to pay attention to the teacher when the teacher explains the learning material because they don't focus and pay attention to other things such as looking at the window, chatting with their friends, and joking .

When the researchers went into the field, the teacher gave questions about the material for calculating the perimeter formula of a rectangle, namely using the $2 \times (p + l)$ formula and the teacher explained how to calculate it, namely the length plus the width, the result was multiplied by 2, but the way to calculate students was not like what the teacher taught.

but they added up the results of the length times the width because there were some students who had not memorized multiplication from multiplication 1-10 they tended to only memorize multiplication 1-5, students also had not mastered the method of counting multiplication in long stacks such as mistakenly saving the results of multiplication numbers, participants students only study when there will be a test tomorrow, there are students who really don't like math lessons they tend to like other subjects where there are no calculations.

3.1.3 Teacher's Efforts to Overcome Difficulties in Learning Mathematics Multiplication Material

As for the results of the interview with the class III teacher when the researcher entered, namely the efforts made by the teacher were to often practice multiplication material math problems, the teacher gave multiplication material math assignments to work on in groups because by working in groups students were more enthusiastic because it was done with friends, teacher provide games with the group, the teacher also gives additional hours after school to students who are lacking in multiplication mathematics, and there are also some students who study at the teacher's house to study additional mathematics.

Observations made by researchers in class III MI Plus Arruhamaa, it is known that the teacher's efforts to overcome difficulties in learning mathematics, multiplication material, are carried out in various ways, namely when the researcher is involved, the teacher is giving a quiz to the students by doing it with their group of friends, if the students answer with If you are correct, immediately show your hand, you will get points worth 10 points for 1 question answered correctly and the group with the most points will get a *reward* from the teacher. This will make students enthusiastic about working on math problems. The teacher also always gives questions and answers about multiplication to students before go home so that students can memorize multiplication before students go home from school and those who can answer correctly students are allowed to go home, teachers also often repeat lessons that are still difficult for students to understand, teachers come to students' desks to help students who are still lacking in learning mathematics, usually those who, when it is time to submit an assignment but have not finished it, are the teacher's job to ask if there are any difficulties with the questions being worked on and that is where the teacher's efforts are made so that students can and understand mathematics learning, the teacher states that a lot of effort has been made but it is indeed difficult if at home there are no students to guide them to learn, and the students do not have the will to learn mathematics, so we as teachers have to be *extra* and patient in teaching students

3.2 Discussion of Research Findings

3.2.1 Difficulty Learning Mathematics Multiplication Material Seen from Cognitive Style

Regarding the difficulty of learning mathematics in multiplication material in terms of cognitive style at MI Plus Arruhamaa, Cilodong District, Depok City, based on interviews and observations, 4 students were not yet independent and were categorized as Field Dependent in working on mathematics questions on multiplication material. The learning difficulties of class III students were caused by when they are class I and II students studying online, some students have not memorized multiplication 1-10, students who have not memorized multiplication count by adding numbers, there are 6 students who always ask friends and ask for help because they cannot do it themselves, The remaining 9 students were independent and worked confidently, but there were students who worked too quickly and were in a rush so that the answers were wrong because they were not careful in working on the questions.

Based on the test results of the students, there were 10 students who experienced an error in answering number 7, which was about finding the perimeter of a square, students were fooled by the square formula, on average they answered $4 \times \text{area}$ which should have been $4 \times \text{sides}$, 9 students also answered the wrong question in number 9. namely the

problem of calculating the area of a square where the students got the wrong way of multiplying the 16×16 numbers because they sometimes forgot how to calculate multiplication in long layers, 10 students also answered incorrectly at number 10 which is a question about calculating the perimeter of a square because students forgot the square formula, and for the number problem 15 there were 5 students who misunderstood the question because in number 15 it was a matter of command in which students were asked about making rectangles with the width and length of each and calculating the circumference but students only drew or made rectangles with the size they didn't calculate the circumference according to his orders.

3.2.2 Causes of Difficulty in Learning Mathematics Multiplication Material

On the causes of students' difficulties in learning mathematics, multiplication material is based on observations, interviews and tests. Researchers found that there were some students who didn't like mathematics because they didn't like counting lessons, some students only studied mathematics when there was a test the next day, students only relied on teachers at school to teach them because at home there was no one to accompany them in learning, Students have not memorized multiplications 1-10, on average students only memorize multiplications 1-5, so when there is a multiplication problem that starts from the number 6, students are confused so they calculate by adding the numbers which causes them to spend a long time because this method takes time. who should have done 2 questions but the students have only done 1 question, they think it's like that, students sometimes forget long-form multiplication to save the numbers that have been multiplied, 2 students prefer other lessons than mathematics lessons, students forget formulas flat shape which causes them difficulty in calculating multiplication

3.2.3 Teachers' Efforts to Overcome Difficulties in Learning Mathematics Multiplication Material

The teacher's efforts to overcome difficulties in learning mathematics in multiplication material in class III MI Plus Arruhamaa are based on interviews and observations, namely that the teacher always provides various teaching methods to students so that students like mathematics lessons, students are given homework (homework) to train them. students in calculating multiplication, the teacher always holds a quiz before the lesson starts, the teacher gives a message to parents to guide their children at home to learn, the teacher forms study groups consisting of 4-5 children so that students are more enthusiastic about learning and can ask questions with friends group because sometimes they want to ask the teacher, some are reluctant and embarrassed, the teacher holds extra hours for students who are still lacking in mathematics learning, usually after school, there are several students who take lessons outside of school hours, the teacher always reviews the mathematics learning that has been done. taught previously, and every morning the teacher and students review the multiplications 1-10 so that students can memorize and make it easier for students to calculate multiplication later.

4 CONCLUSION

Based on the research results Analysis of Students' Learning Difficulties in Mathematics in Multiplication Material Viewed from Cognitive Style at MI Plus Arruhamaa Cilodong District, Depok City in Class III Students, it can be withdrawn the conclusions are as follows: (1) The difficulty of learning mathematics for students in multiplication material in terms of cognitive style at MI Plus Arruhamaa, Cilodong District, Depok City, namely that most students just memorize multiplication 1-5 which causes them difficulties when working on questions because there are usually many multiplications 6-10, there are 4 students who are categorized as not independent and still have difficulty working on multiplication material math problems, students tend to have difficulty because they don't memorize

multiplication, students are not careful in working on questions because they are in a hurry to finish as soon as possible, students forget by multiplying in a long stack and forgetting to put the numbers in place, students forget the flat shape formula causing them to be wrong in calculating , (2) The cause of difficulty learning mathematics in multiplication material at MI Plus Arruhamaa, Cilodong District, Depok City is that students do not have tutoring with parents at home, there are some students who admit that they only study if they will face a math test tomorrow, there are students who are not focused when doing their assignments tend to see pencils continuously not doing their work if the teacher does not come to their desk, students have not memorized multiplication 1-10, students only study at school, students are less confident with their own answers, sometimes they always ask friends or teachers, students do not practice math problems multiplication material because no one accompanies them to study at home, (3) teacher 's efforts in overcoming difficulties in learning mathematics multiplication material at MI Plus Arruhamaa Cilodong District, Depok City is that the teacher always reviews the math lesson on multiplication material 1-10 every morning before starting learning, the teacher forms study groups with 4-5 children so that students are enthusiastic about learning because they can asking with friends, the teacher holds quizzes or games usually those with the most points will get a *reward* from the teacher, the teacher always approaches the desks of students who look like they haven't finished working on the questions within the allotted time, the teacher gives messages to parents to guide the participants the students are at home, the teacher holds extra hours after school for children who are still lacking in math multiplication material, the teacher always gives questions and answers to students on multiplication material 1-10 when they want to go home from school and those who answer correctly students may go home first.

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