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The Analysis of Learning Difficulties in Mathematics Fraction Material in the Learning Process of the Covid-19 Pandemic Transition Period

Mutia Ayu Ditha*, Chrisnaji Banindra Yudha, Arhamuddin Ali
Elementary School Teacher Education, STKIP Kusuma Negara Jakarta, Indonesia
*mutiaayu@stkipkusumanegara.ac.id

Abstract

Learning difficulties in students or often referred to as learning disorders are closely related to the achievement of learning outcomes and students' daily activities. Learning difficulties are conditions where the competence or achievement achieved by students does not match the predetermined standard criteria, such as attitudes, knowledge and skills. The research objective to be achieved is to find out the learning difficulties of math fraction material in class V SDN Kalisari 01 East Jakarta. The research method used by researchers is descriptive qualitative. The data sources in this study were teachers and students of class V-A. Data collection techniques are observation, interviews, questionnaires, and documentation. The data analysis technique uses the Miles and Huberman Model. Data validity in this study uses source triangulation and technique triangulation. The results showed that the difficulty of learning math fraction material in the learning process during the transition period of the Covid-19 pandemic in class V SDN Kalisari 01 East Jakarta lies in concept difficulties, principle difficulties and skill difficulties and the factors of learning difficulties in learning math fraction material are caused by several factors, namely internal and external factors of students. The efforts made by the teacher have not been optimal in their application to the material, delivery and assignments during the learning process.

Keywords: Math learning difficulties, Fraction Material, Covid-19 Pandemic

1 INTRODUCTION

According to (Ekarista, K. H., 2022) Mathematics is one of the important subjects studied by students at various levels of education ranging from primary level to tertiary level with an emphasis on understanding concepts and structures.

In learning mathematics requires very high thinking activities because of the abstractness of the concept so that many students find math difficult, confusing and boring to learn. (Yueni, D. R., 2018). Diagnosis of mathematics learning difficulties in algebraic operation material in grade vii junior high school students. Kediri: In addition, the reason students find math lessons difficult is because they have to struggle with calculations and formulas that require memory and analytical power in their use, so that many students dislike math lessons and even make math a lesson that must be avoided. Whereas students who do not like math lessons will be able to cause anxiety which results in difficulty in understanding the material so that it will have an impact on low math learning achievement.

According to Nini Subini (2011: 15) learning difficulties in students or often referred to as learning disorders are closely related to the achievement of learning outcomes and students' daily activities. Learning difficulties are conditions where the competence or achievement achieved by students is not in accordance with predetermined standard criteria, such as attitudes, knowledge and skills. Students who experience learning

difficulties, will find it difficult to absorb various subject matter delivered by the teacher so that these students will be lazy in learning and even avoid these lessons and ignore the assignments given by the teacher and all of this will have an impact on reducing student learning achievement.

New policies related to the implementation of learning during the pandemic are explained in the Guidelines issued by the Ministry of Education and Culture for the implementation of learning during the Covid-19 pandemic. There are two policies that apply to all levels of education ranging from early childhood education to higher education, namely; (1) The implementation of learning during the Covid-19 pandemic is based on the PPKM level set by the government and the vaccination achievements of the population, education personnel, and elderly community members, (2) In education units located in special areas based on geography, it is possible to conduct full face-to-face learning (PTM) with 100% student capacity. Regions that fall under special conditions can be found in Minister of Education, Culture, Research and Technology Decree No.160/P/2021.

Mathematics learning should be presented by paying attention to the curriculum and mindset in accordance with the level of cognitive development of students to be more effective. Cognitive development that affects learning emphasizes learning constructivism. (Syafri, F. S., 2016) In constructivism, knowledge construction is carried out by students themselves, while the teacher acts as a facilitator and creates a conducive climate. So, in order for mathematics lessons in SD / MI to be understood by students properly, it is advisable to teach a subject or material to students who are ready to be able to accept it.

Based on initial observations that researchers have made, students look inactive with face-to-face learning due to distance learning which makes students decrease their learning level and most students still have difficulty in understanding mathematics material and students' inability to use mathematical concepts correctly. Many students are less active and not excited when learning math. In addition, the impact of the co-19 pandemic has made learning activities limited, namely carrying out face-to-face meetings only twice a week. Among some of the fifth grade math materials that are most difficult for students to understand is the fraction material where students have difficulty solving problems related to fractions. The difficulty lies in the denominator part which should find the Small Common Multiple (KPK) first to find the answer, instead most students add or subtract the two numbers.

Responding to the above problems, it is necessary to conduct research on the importance of knowing the learning difficulties that are often experienced by students in the classroom, especially difficulties in math lessons which are still something that is avoided and frightening for students. A teacher is required to always develop himself both in the ability to learn mathematics and the management of the teaching and learning process. In addition, a teacher must have the ability to diagnose student difficulties. This means that the teacher is not only able to analyze the subject matter but also the various difficulties experienced by students in receiving the subject matter, so that the teacher can guide and help students to get optimal learning results. The information obtained from this research is expected to reduce math learning difficulties in grade V, so that these difficulties do not continue in grade VI.

2 RESEARCH METHODS

According to (Sugiyono, 2013), qualitative research methods are often referred to as naturalistic research because the research is conducted in natural conditions (natural settings). The method used by researchers in this study is to use Descriptive research methods with a Qualitative approach. In 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 it is an individual, group, or phenomenon that occurs. The procedure for implementing researchers to be carried out by researchers using descriptive research is through observation, interviews, questionnaires and documentation studies.

In this study researchers used data collection techniques in the form of observation, interviews, and documentation. The subjects in this study were V-A class teachers and V-A class students, who were at SDN Kalisari 01 East Jakarta, 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 as to produce clear and detailed information, 2) data presentation, namely presenting data in narrative form or by describing related student learning difficulties in fraction material 3) data verification or conclusion drawing, namely knowing the Difficulty of Learning Mathematics Fraction Material in Class V-A Students of SDN Kalisari 01.

3 RESULT 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 the difficulty of learning math fraction material in class V-A SDN Kalisari 01 East Jakarta. Researchers conducted initial data collection using instruments in the form of observation sheets, interviews and documentation. When researchers make observations, researchers use tools such as cellphones, notebooks and field notes that researchers use to record and take pictures related to things when research takes place. When researchers conducted classroom observations, researchers observed class V-A teachers and class V-A students.

3.1 Result

3.1.1 SLearning Difficulties in Mathematics Fraction Materials in the Learning Process of the Covid-19 Pandemic Transition Period

In general, the learning process during the transition period of the Covid-19 pandemic was less conducive, some students seemed active in the learning process, but there were some students who seemed uninterested in learning math so that these students were busy chatting with their friends. The researcher asked students about different denominator fractions, students seemed to have difficulty in answering. Because the length of Daring learning makes students forget about multiplication, this is what makes students difficult in learning math fraction material. Only a few students still remember fraction material. After the researcher provides an overview related to the questions that will be given. Furthermore, the written test was carried out at 09.00 am -10-00 am. The test material given was fractions with different denominators consisting of 10 multiple choice questions. Towards the end of the test, the researcher informed that after their test results were checked, there were several students who would be asked for help to conduct interviews related to the test that had just been carried out.

After the test was completed, the researcher examined the answers to the written tests given to students. From the test results, researchers selected student answers that were included in concept difficulties, principle difficulties, and skill difficulties.

a) Concept Difficulty

Based on the data obtained by researchers, several facts were found from several interview subjects, namely Mrs. Sudiati as the teacher of class V-A and students of class V-A related to the concept of fractions. Mrs. Sudiati stated that related to the concept of fractions, many students still do not understand. For example, to equalize the denominator in addition they have difficulty and some of them have not been able to distinguish the numerator and denominator. This is evidenced by the results of Bayu's diagnostic test, he stated that it was difficult to distinguish between the numerator and denominator, because

he was confused and forgot, so they were often confused. Their statement is corroborated by the evidence of Bayu's question number 1 test results as follows:

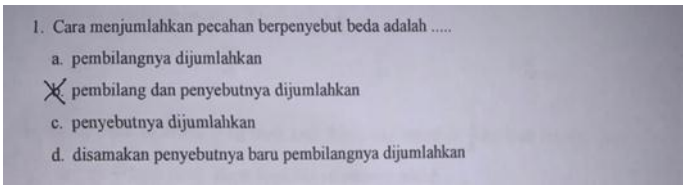
1. Cara menjumlahkan pecahan berpenyebut beda adalah .....
a. pembilangnya dijumlahkan
X pembilang dan penyebutnya dijumlahkan
c. penyebutnya dijumlahkan
d. disamakan penyebutnya baru pembilangnya dijumlahkan

Figure 1. Student Test Answers

The concept difficulty was done by a student named Azzahra. The student experienced concept difficulty because she made a mistake in adding two ordinary fractions with different denominators without equalizing the denominator first. And there is also a mistake that the numerator is not multiplied first but directly added. Here is Azzahra's answer number 2:

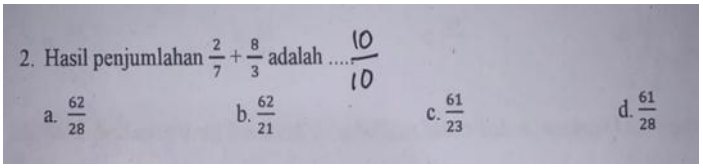
2. Hasil penjumlahan $\frac{2}{7}+\frac{8}{3}$ adalah 10/10
a. $\frac{62}{28}$ b. $\frac{62}{21}$ c. $\frac{61}{23}$ d. $\frac{61}{28}$

Figure 2. Student Test Answers

b) Principle Difficulty

Based on the data that has been obtained, some facts were found from Mrs. Sudiati as the teacher of class V-A and students of class V-A related to the principle of fractions. Mrs. Sudiati stated that related to the principle of fractions, students have more difficulty in calculating the addition and subtraction of fractions, so they must be reminded first, both from the concept and the formula. As in Micael's test result, he understood the formula but did not know why it was used. This statement is corroborated by the evidence of the test results of question number 6 of Micael's students, as follows:

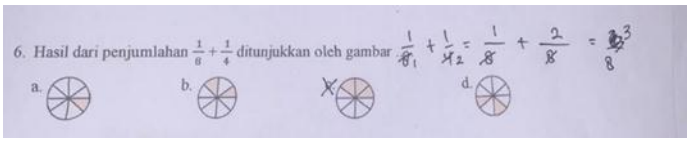
6. Hasil dari penjumlahan $\frac{1}{8}+\frac{1}{4}$ ditunjukkan oleh gambar ... $\frac{1}{8}+\frac{1}{4}=\frac{1}{8}+\frac{2}{8}=\frac{3}{8}$
a. b. X d.

Figure 3. Student Test Answers

Then, Aisyah's student had difficulty in principle because she was wrong in determining the numerator of the fraction. Because students used the wrong principle, the final result was also wrong. In addition, there are also those who incorrectly multiply the denominator and the numerator. This statement is corroborated by evidence from the test results of Aisyah's question number 3, as follows:

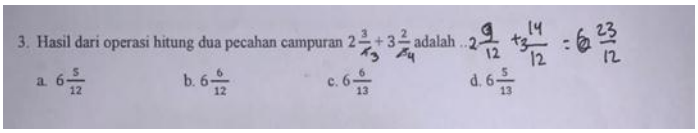
3. Hasil dari operasi hitung dua pecahan campuran $2\frac{3}{4}+3\frac{2}{4}$ adalah .. $2\frac{9}{12}+3\frac{14}{12}=6\frac{23}{12}$
a. $6\frac{5}{12}$ b. $6\frac{6}{12}$ c. $6\frac{6}{13}$ d. $6\frac{5}{13}$

Figure 4. Student Test Answers

In addition, Mrs. Sudiati also stated that students experience errors that cause them to have difficulty solving problems on addition, fractions. However, to be mistaken in terms of calculation is rare, more often mistaken in converting mixed fractions into ordinary fractions. As the statement, it is corroborated by the evidence of the test results of question number 3 Azriel who experienced the mistake of converting mixed fractions into ordinary fractions, as follows:

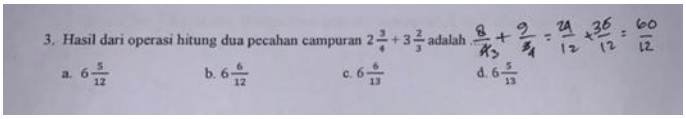

Figure 5. Student Test Answers

c) Skill Difficulty

Based on the data that has been obtained, several facts were found from several participants, namely Mrs. Sudiati as the V-A class teacher and V.A class students related to numeracy skills. skill difficulties are revealed when students work on fraction problems with different denominators, but in the process students make mistakes, namely wrong multiplication results, which are written in the answer to the question the result of multiplying 4 × 3 + 2 = 8, where it should be 4 × 3 + 2 = 14. in this case students are not skilled in counting multiplication. This statement is corroborated by evidence from the test results of question number 3 of Arjuna's students, as follows:

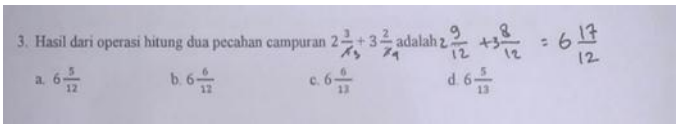

Figure 6. Student Test Answers

3.1.2 Factors Causing Difficulty in Learning Mathematics Fraction Materials in the Learning Process of the Covid-19 Pandemic Transition Period

After correcting the students' test results, the researcher conducted interviews with six students. The six students selected based on the results of the highest ability, medium ability and low ability from each qualification were taken two students. The selection of students is based on the test results and cannot be separated from the teacher's consideration with the aim of obtaining accurate data. From the results of these interviews that the results of math learning difficulties in class V-A are caused by internal factors and external factors.

a) Internal causes of math learning difficulties

1) Students Attitude in Learning Mathematics: Based on interviews, researchers found that students' attitudes towards math lessons as a whole paid attention but some students did not pay attention for certain reasons. One of the students who did not pay attention when the math lesson took place was Bayu. For Bayu, math is a difficult lesson to understand and boring so Bayu does not pay attention when math lessons take place, 2) Student Interest in Learning Mathematics: The absence of student interest in learning will lead students to have difficulty in digesting lessons. Based on interviews, researchers found that the overall interest of students varied, some liked math lessons and some did not like math lessons. One of the students who disliked math was a student named Azzahra, she disliked math because she thought math was difficult to understand. 3) Learning Motivation: Student motivation in learning mathematics is low, it can be seen during the observation that students do not pay attention to the teacher properly, even though at the beginning of the lesson the teacher has provided motivation to learn well. In addition, student motivation can be seen from students' preparation in learning math. Students with strong motivation will enjoy learning math even though there is no homework or test

the next day. However, students who are indicated to have difficulty learning mathematics have low motivation, they do not repeat the material that has been delivered or study in advance the material that will be delivered. 4) Body Health: Health is an important factor in carrying out math learning activities. If students' health conditions are disturbed, they will experience difficulties in learning. Students who are often sleepy and not concentrating during learning can be a sign that the student's physical condition is less than optimal and results in not absorbing the subject matter properly. Based on the results of interviews, researchers found that some students who indicated having learning difficulties felt dizzy during math learning. 5) Sensing Ability: Visual impairment will interfere with students in receiving information, especially in learning mathematics. From the results of data collection, not many students have visual impairments. The researcher found two students who were visually impaired. They cannot see far away or minus eyes. Students who are lacking in vision need special handling, it is a special concern for their class teacher. Knowing that there are students who are visually impaired, he told him to check first because to find out the cause of his visual impairment and there are several students who have visual impairments to sit on the front bench.

b) External factors of math learning difficulties

1) Available Media and Learning Support Tools: Teachers of class V-A SDN Kalisari 01 East Jakarta have realized the importance of learning media as a means of conveying information to students so that they can more easily understand the material being taught. However, the obstacle found in the field is the teacher's lack of understanding of the importance of using learning media in accordance with the material to be conveyed, such as the teacher has not used the media in delivering fractional number operation material. The lack of teacher understanding of the use of learning media has an impact on the lack of understanding of concepts in students because there are no concrete examples that can help students to better understand the material that has been explained. 2) School facilities and infrastructure: Facilities and infrastructure at the school have supported mathematics learning. 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. The classrooms are equipped with air vents that allow air exchange so that the class is not stuffy and comfortable to use for learning. However, a dirty blackboard was found at SDN Kalisari 01, causing students to be unable to see the writing clearly. 3) Family environment: The family is the first environment that has the most influence on children's lives. Guidance and attention from parents is very influential on the success of children. From the results of the analysis that has been carried out, it is known that students who are indicated to have difficulty learning mathematics do not always get attention from their parents at home. The lack of attention is due to parents who are busy working so that children are rarely paid attention to. One example of the lack of parental attention to children was found when the researchers made observations, namely some students did not do the homework given by the teacher. Students who lack supervision and guidance from their parents will experience many learning difficulties.

3.1.3 Teachers Efforts to Overcome Learning Difficulties in Fraction Mathematics in the Learning Process of the Covid-19 Pandemic Transition Period

Teachers provide repeated practice and remedial programs to overcome math learning difficulties. The efforts made by teachers have not been optimal in their application to the material, delivery and assignments during the learning process. Researchers did not see

that during the learning process the teacher in the process of delivering the material used a group system so that it had not focused on the abilities of each individual. Then the assignments given by the teacher have not adjusted to the students' ability to absorb the material he has delivered. Some students cannot answer every fraction problem given by the teacher when the teacher directly points to each student to answer the questions on the board.

3.2 Discussion

3.2.1 SLearning Difficulties in Mathematics Fraction Materials in the Learning Process of the Covid-19 Pandemic Transition Period

The learning difficulties experienced by grade V students in learning mathematics are in accordance with the opinion of (Mardiah, A., 2019) namely students difficulties in understanding concepts, students' inability to count, students inability to understand mathematical symbols, and students' inability to understand multiplication.

Based on the description above, it is relevant to the findings of the research conducted by the researcher. It is evident that the difficulty of learning mathematics fraction material: a) concept difficulty, lies in student errors in solving addition problems of fractions with different denominators, students do not equalize the denominator first, errors in writing addition numbers, multiplication in fractions with different denominators, or mixed fractions, and determining the KPK number. This difficulty is not only done by low ability students, but high ability students also experience it. b) Principle difficulty, this difficulty lies in errors in determining the numerator of the fraction, incorrectly multiplying the denominator and numerator so that it is wrong until the final result and wrong in converting mixed fractions into ordinary fractions. c) Skill difficulty, this difficulty lies in students' mistakes in writing mixed fractions with different denominators, and difficulty in calculating multiplication and addition of fractions with different denominators.

3.2.2 Factors Causing Difficulty in Learning Mathematics Fraction Materials in the Learning Process of the Covid-19 Pandemic Transition Period

The findings according to (Khoriah, H, B., 2021) are that the difficulty in learning mathematics experienced by students is also caused by internal and external factors. internal factors experienced are the level of intelligence (intelligence), low interest in learning, low learning motivation, and body health. While the external factors experienced by students are the lack of parental attention to students' learning activities, the presentation of material by the teacher is less interesting, the use of monotonous lesson methods, the use of learning media that is not maximized.

Based on the findings of previous research (Khoriah, H, B., 2021) that it is relevant to the research findings that have been conducted by researchers. This is evidenced based on data obtained from teacher and student interviews in class V-A, namely internal factors originating from attitudes, interests, learning motivation, body health, and students' sensing abilities. while external factors based on learning media, school facilities and infrastructure and the family environment.

3.2.3 Teachers Efforts to Overcome Learning Difficulties in Fraction Mathematics in the Learning Process of the Covid-19 Pandemic Transition Period

According to (Chusna, F, A., 2016) the efforts made by teachers to overcome math learning difficulties in fourth grade students of SD Negeri 1 Pangenrejo, namely: 1) teachers ensure students' learning readiness; 2) teachers in delivering teaching materials use learning media in the form of teaching aids; 3) teachers in delivering material and giving examples relate to the surrounding environment and students' lives so that students more easily understand the material; 4) each giving of problems is adjusted to the ability of students, namely giving problems that are easy for students to understand then gradually students are given complex problems; 5) teachers give students the freedom to solve problems in

their own way; 6) teachers eliminate students' fear of learning mathematics through fun learning.

Based on the description above, it is relevant to the findings of the research conducted by the researcher. It is evident that the teacher's efforts that can be made to overcome math learning difficulties are described as follows 1) Provide sufficient and repeated practice by providing practice problems so that students will get used to doing and will better understand the material that has been conveyed by the teacher before; 2) Provide a repair or remedial program. With this, if the student scores less than the KKM, the student can repeat through remedial so that the results are good.

3.3 Tabel

The following is a table of research results related to the Analysis of Learning Difficulties in Mathematics Fraction Matter in the Learning Process of the Covid-19 Pandemic Transition Period.

Tabel 1. Interview Subject

Student Ability	Student Name
High	Arjuna Ardhiansyah
	Azriel Rizkie Al Davi
Medium	Aisyah Haris
	Micael Lionel Halomoan
Low	Azzahra Nur Maulida
	Bayu Radhitya Cipta

From table 1, interview subjects in solving fraction problems with different denominators will be described the answers and types of difficulties experienced by students.

4 CONCLUSION

Based on the results of research and discussion of the analysis of learning difficulties in mathematics fraction material for fifth grade students of SDN Kalisari 01 East Jakarta, the following conclusions are obtained. Learning difficulties experienced by students in solving addition problems of fractions with different denominators Concept difficulty, Principle difficulty, and Skill difficulty, this difficulty lies in students' mistakes in writing mixed fractions with different denominators, and difficulty in calculating multiplication and addition of fractions with different denominators.

Factors causing fifth grade students of SDN Kalisari 01 East Jakarta are Internal Factors: 1) Student Attitude in learning, 2)Student interest, 3) Motivation to learn, 4) Body health, 5) Sensing ability. External factors: 1) Media and pennjang tools available, 2) School facilities and infrastructure, 3) Family environment.

3) Efforts that can be made to overcome learning difficulties in mathematics fraction material for fifth grade students of SDN Kalisari 01 Jakarta, namely the teacher can 1) Provide sufficient and repeated practice; 2) Provide a repair or remedial program. With this, if students score less than the KKM, students can repeat through remedial so that the results are good.

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