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SIXTH GRADE STUDENTS' MISCONCEPTIONS ON DECIMAL NUMBERS THROUGH ROUTINE EXERCISE QUESTIONS

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Abstract
Mathematics is an important subject in elementary school because it is the basis for understanding more complex mathematical concepts in the future. One of them is that students need to study number material in basic mathematical concepts because it is very important to master and understand, for example it can be used in commerce, measurement and technology. However, in the field, elementary school students are still found to have misconceptions about understanding the concept of comparing, ordering or calculating decimal numbers. This research uses a qualitative approach with a case study method. The subjects of this research were 4 class VI students at an elementary school in Banyuresmi sub-district, Garut. Data was collected through observation, interviews, and providing routine practice question sheets. The findings in this research are, 1) Some students have difficulty understanding decimal numbers and ordering them as well as performing addition calculation operations, 2) Some students consider decimal numbers with more digits after the comma as larger numbers, 3) There are also students who make mistakes. Storing numbers after commas can cause errors in calculations. So the alternative solution that can be given is that teachers can identify the source of student misconceptions by providing diagnostic tests, using more interactive learning methods, providing case examples from everyday life, providing more and varied exercises, providing continuous feedback. and be constructive towards student answers, and facilitate discussions that focus on problem solving. This will help students understand the concept of decimal numbers more effectively and efficiently.
Keywords: *Misconceptions; Decimal Numbers; Regular Exercises*

Abstrak
Matematika adalah pelajaran penting di sekolah dasar karena menjadi dasar pemahaman konsep matematika yang lebih kompleks di masa depan. Salah satunya siswa perlu mempelajari materi bilangan dalam konsep matematika dasar karena sangat penting untuk dikuasai dan dipahami, misalnya dapat digunakan dalam perdagangan, pengukuran, dan teknologi. Namun di lapangan masih ditemukan siswa SD yang memiliki miskonsepsi dalam memahami konsep membandingkan, mengurutkan atau menghitung bilangan desimal. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi kasus. Subjek penelitian ini adalah 4 siswa kelas VI di salah satu sekolah dasar di kecamatan Banyuresmi, Garut. Data dikumpulkan melalui observasi, wawancara, dan pemberian lembar soal latihan rutin. Adapun temuan dalam penelitian ini, 1) Beberapa siswa mengalami kesulitan dalam memahami bilangan desimal dan mengurutkannya serta melakukan operasi hitung penjumlahan, 2) Beberapa siswa menganggap bilangan desimal dengan digit di belakang koma lebih banyak sebagai bilangan yang lebih besar, 3) Ada juga siswa salah dalam menyimpan bilangan di belakang koma, menyebabkan kesalahan dalam perhitungan. Sehingga Solusi alternatif yang dapat diberikan adalah guru dapat mengidentifikasi sumber kesalahan konsep siswa dengan memberikan tes diagnostik, menggunakan metode pembelajaran yang lebih interaktif, memberikan contoh kasus dari kehidupan sehari-hari, memberikan latihan-latihan yang lebih banyak dan beragam, memberikan umpan balik yang berkesinambungan dan konstruktif terhadap jawaban siswa, dan memfasilitasi diskusi yang berfokus pada pemecahan masalah. Ini akan membantu siswa memahami konsep bilangan desimal secara lebih efektif dan efisien.
Kata Kunci: Miskonsepsi; Bilangan Desimal; Soal Latihan Rutin

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Introduction

This research was prepared based on a case study that was conducted by researchers regarding students' misconceptions regarding mathematics learning in decimal number material through providing routine practice questions, the impact of which could provide a contribution in the form of an article about the problems faced by teachers in teaching the concept of decimal numbers. Basically, the mathematics learning curriculum is the foundation or basis that serves as a guideline in preparing learning programs in schools. According to the National Education System Law No. 20 of 2003, the curriculum must include competency standards, basic competencies, and learning materials that students must master. The curriculum is a crucial element of education as it determines the direction, content, and learning process that ultimately determines the qualifications of graduates from an educational institution (Anggraini et al., 2022). The curriculum is a dynamic education system that continuously evolves with the development and challenges of the times (Rouf & Lufita, 2018). As a nation's civilization advances, the challenges faced become increasingly daunting. Moreover, mathematics experts have also shared their views on the mathematics learning curriculum that should be applied in schools and must be capable of helping students develop critical, analytical, and creative thinking skills in solving mathematical problems. They also emphasize the importance of implementing a relevant curriculum that meets the needs and developments of the times. The mathematics learning curriculum must be continuously updated and adjusted to the ever-advancing technology and information. In conclusion, the foundation of the mathematics learning curriculum must include competency standards, basic competencies, and learning materials that students must master, while also helping students develop critical, analytical, and creative thinking skills in solving mathematical problems. The curriculum must also be relevant to the needs and developments of the times.

Mathematics is an important lesson for elementary school students because the material studied in this lesson becomes the basis for understanding more complex mathematical concepts in the future. Apart from that, mathematics also has many benefits in everyday life. Mathematics is needed in almost all aspects of life because it can form critical, systematic, logical and creative thinking patterns. Apart from that, studying mathematics can also improve effective collaboration skills (Mailani & Wulandari, 2019). Mathematics must be adapted to students' daily circumstances. These conditions do not have to be actual, but must be related to things they can imagine or access in their minds. Furthermore, mathematics is seen as a human action that provides students with opportunities to learn through mathematical activities. The hope is that students can understand mathematical ideas (Boru & Hakim, 2022). Therefore, through learning mathematics, students can develop logical and critical thinking skills, because in mathematics there are many problems that require solving using logical and systematic thinking.

Students can also learn to count well, because this is an important skill that can be used in everyday life. Apart from that, mathematics subjects also prepare students to understand concepts in other fields, such as physics, chemistry and economics. Mathematics is a deductive science that requires proof of truth. In addition, the development of mathematical concepts is based on a hierarchy consisting of defined elements, undefined elements, axioms and theorems.

Thus, mathematics is considered a well-structured science. (Isrok'atun & Rosmala, 2018). Studying mathematics can help someone develop logical, innovative, critical, systematic, analytical and creative thinking abilities (Jusniani et al., 2023). Therefore, learning mathematics is very important for elementary school students. However, in the field of mathematics subjects are often considered difficult by students. So far, there are still many students who have difficulty and are afraid to study mathematics (Suhendar & Yanto, 2023). This may be caused by monotonous learning methods, or because of a lack of interest in studying mathematics. So a strategy and technique is needed to teach it so that they are interested in learning mathematics.

One of the materials that students need to learn is numbers, numbers are a basic mathematical concept that is very important for students to master. In mathematical calculations, numbers are the basic elements that students must master. Therefore, students must have sensitivity in understanding numbers (Nurjanah & Hakim, 2019). One of the mathematical materials that cannot be separated is numbers. Basic knowledge of mathematics is very important, because it contains basic concepts such as numbers. Numbers are one of the most important parts of mathematics because they are very useful to apply in everyday life (Hakim & Mulyatna, 2023). In mathematics learning, numbers are used in various operations, such as addition, subtraction, multiplication and division. A strong understanding of numbers is necessary so that students can master more complex mathematical concepts in the future. Apart from that, a good understanding of numbers can also help students in everyday life. For example, in counting money, measuring length and width, or even in cooking. Therefore, teachers and parents must pay enough attention to learning numbers so that students can master them well. In the learning process, it is important to facilitate student development in various aspects such as reason, character, innovation, independence, comfort and expertise. To achieve this, an educational ecosystem is needed that is able to provide the support and facilities needed by students. That way, students will be able to develop their potential optimally (Yamin & Syahrir, 2020). There are several ways that can be done to help students understand numbers. One way is by using a creative and fun learning method, such as playing math games or creating activities that connect math with everyday life. In this way, students can be more interested and motivated to learn and understand the concept of numbers better.

Decimal numbers are a type of number in mathematics that is used to represent fractional numbers. Decimal numbers consist of two parts, namely whole numbers and fractional numbers separated by a period ".". Whole numbers are whole numbers or numbers without fractions. Whole numbers are often the solution to dealing with various everyday problems, such as problems of profit and loss, savings and loans, debts and receivables, height and depth, etc. (Hanik, 2017). Meanwhile, fractional numbers are numbers that have fractions or are not whole numbers. Examples of decimal numbers include 0.5; 1.25; 2.75; 3.14159. Decimal is known as base ten because it uses the number ten as the basis for its calculations (Afriyansyah, 2013). Decimal numbers are used in various mathematical and other scientific applications, such as physics, chemistry and statistics. Decimal numbers are also usually used as a number system which is generally applied in daily activities. This number system is used to count amounts of money, measure the weight of objects, or calculate time. For example, when a student buys an item in a shop, the price of the item is often listed in decimal numbers. Students can also measure body weight or the weight of other objects using kilograms or grams, which are units based on decimal numbers. Apart from that, time is also often calculated in decimal numbers, such as 3.5 hours or 2.25 hours. The choice of decimal number material is based on the fact that decimal numbers are often found in everyday life. Decimal numbers can be found when using calculators, computers, and printed media such as newspapers and magazines. In

addition, news on television often includes statistics in the form of quantitative data reported in decimal and percent systems (Warni, 2011). In conclusion, decimal numbers are a very important number system and are used in various aspects of our lives, such as in commerce, measurement and technology. Therefore, understanding and mastering the use of decimal numbers is very important in everyday life.

The following are several examples of applications of decimal numbers in everyday life, such as, 1) Measurement, measurement is one of the most common applications of decimal numbers. For example, when we measure the length of an object, we can use meters or centimeters which are decimal numbers. Likewise, when we measure the weight of an object, we can use grams or kilograms, which are also decimal numbers. 2) Calculating the average is also an important application of decimal numbers. For example, when we want to calculate the average test score of students, we can use decimal numbers to calculate the average score more accurately. 3) Apart from that, decimal numbers are also often used in shopping. When we buy goods at the market or shop, we often use decimal numbers to calculate the price and quantity of the goods purchased. In this case, decimal numbers really help us in carrying out calculations accurately. In conclusion, decimal numbers have very wide applications in everyday life, from measurements, calculating averages, to shopping. In this case, a good understanding of decimal numbers is very important to help us carry out calculations more accurately and efficiently so as to avoid misconceptions in answers and processes.

After learning about decimal numbers, we next learn about the misconceptions that researchers find in students studying mathematics. Misconceptions themselves are errors in a person's understanding or interpretation of a particular concept or information. Misconceptions are discrepancies between a concept and the scientific definition that has been accepted by experts. There are three types of misconceptions, namely errors in understanding the initial concept, errors in connecting several concepts, and incorrect ideas (Yulianti, 2017). One way to reduce or eliminate misconceptions in students is to replace wrong knowledge with correct knowledge. However, this can be difficult because misconceptions tend to be difficult to eliminate and remain with students, especially if they are only conveyed verbally. Sometimes, students who have been given the correct knowledge within a certain period of time, can return to using the wrong knowledge (Taqwa & Pilendia, 2018). There are many factors that can cause someone to experience misconceptions, one of which is a lack of understanding of basic concepts related to the topic. Misconceptions or wrong understanding in mathematics often become obstacles in learning. The following are some misconceptions that are often found in learning mathematics: 1) Some students think that larger fractional numbers are always more numerous than smaller fractional numbers. In fact, smaller fractions can be larger if you look at the denominator. 2) There are students who understand that multiplication always produces a larger number. In fact, multiplication can also produce smaller numbers, depending on the multiplying and subtracting factors. 3) Assume that division always produces a whole number. In fact, division can produce decimal numbers or fractions.

This misconception can be overcome by approaching mathematics learning in a structured and comprehensive manner, and providing clear and complete explanations. That way, students can understand mathematical concepts correctly and can apply them appropriately. Decimal numbers are usually taught in mathematics lessons in elementary schools. However, there are often misconceptions about students' understanding of decimal numbers. One of the misconceptions that often occurs is considering decimal numbers to be whole numbers. Actually, decimal numbers are fractional numbers. Many students think that

decimal numbers such as 2.5 or 3.8 are whole numbers because there are no fractions in the form of ordinary fractions such as 2/5 or 3/10. In fact, decimal numbers actually have a fractional part which is indicated by the number after the comma.

Many elementary school students have misconceptions in understanding the concept of comparing, ordering and calculating decimal numbers. One misconception that is often found is that they assume that the more digits after the comma, the greater the value of the number. However, this is not always true. For example, the number 0.9 is smaller than the number 0.83 even though the number 0.83 has more digits after the comma, another example is when asked to compare 0.5 and 0.123, students might think that 0.123 is larger because it has more digits. compared to 0.5. Apart from that, elementary school students also often experience difficulty in arranging decimal numbers in the correct order. They may assume that the order of decimal numbers is the same as the order of whole numbers and ignore the digits after the commas. For example, when asked to sort 0.1; 0.15 and 0.2, students might rank them as 0.1; 0.2 and 0.15 because they consider 15 to be smaller than 2. Lastly, elementary school students can also have difficulty calculating decimal numbers. They may assume that mathematical operations with decimal numbers are the same as whole numbers and ignore the digits after the comma. For example, when asked to calculate 0.25 + 0.3, students might answer 0.28 without considering where the number behind the comma is.

There are two types of questions in mathematics, namely routine and non-routine questions. Routine questions have the same or similar procedures as the material that has just been studied, while non-routine questions require a strong understanding of concepts and strategies to be solved (Harahap, 2022). Routine problems involve applying mathematical procedures similar to those just learned. Meanwhile, non-routine problems require deeper thinking to find the right procedures (Putri, 2018). By providing routine practice questions, efforts can be made to find out students' mistakes in understanding a lesson, one of which is decimal number material. Decimal numbers are numbers that have commas or are fractional numbers. A good understanding of decimal numbers is very important in mathematics, because decimal numbers are often used in everyday life, such as when taking measurements or counting money. When giving practice questions, the teacher should give questions that are varied and challenging, but still within the limits of the student's abilities. Practice questions that are too easy or too difficult will not be effective in improving students' understanding of decimal numbers. Apart from that, teachers must also provide constructive feedback and give students opportunities to correct their mistakes. Apart from providing practice questions, teachers can also use various learning methods that can help improve students' understanding of decimal numbers, such as using manipulatives or educational games. Thus, to overcome students' misconceptions about decimal number material, research was carried out to analyze it by providing routine practice questions that are usually tested in the field. It is hoped that this research can provide alternative solutions for teachers in solving students' misconceptions.

After understanding students' misconceptions when learning mathematics about decimal numbers and providing routine practice questions, of course this article was prepared based on relevant research, there are 6 types of misconceptions that occur among students when studying decimal numbers, including: 1) Correlational misconceptions, meaning students do not understand the relationship between other concepts and the operational concept of calculating decimal numbers, 2) Theoretical misconceptions, meaning that students do not understand the basic concept of decimal number fractions, 3) Systematic misconceptions, students do not really understand the steps involved, 4) Basic misconceptions, students do not solving questions according to predetermined procedures, 5) Misconceptions in calculations,

students are wrong in determining the results of their answers and 6) Misconceptions in interpreting language, meaning students do not understand the questions given (Aini, 2020). Then the way to eliminate misconceptions about teaching mathematics in elementary schools is to apply or apply mathematical material in everyday life, especially in the use of reason and thought to solve a problem (Arifiati et al., 2023), then one of the causes of misconceptions in number material Decimals are an example of questions given by educators that are less varied so that the generalizations made by students are wrong and the time given to use teaching aids is relatively short, so students tend to work using sequential additions such as adding whole numbers (Johar et al., 2016). Based on the presentation and previous research problems that researchers found, further action is needed regarding the misconceptions that occur in students when studying decimal number material. Thus, the researcher intends to analyze students' misconceptions about decimal number material by providing routine practice questions that are usually tested in the field. The hope is that this research can provide an alternative solution for teachers in resolving students' misconceptions about decimal number material, and its contribution can be used as a reference, study and further development of teachers' strategies for teaching decimal numbers to students.

Research Methods

This research applies a qualitative approach using case study and literature methods. The qualitative approach involves data analysis starting with reducing, presenting, verifying, and concluding data. This approach does not require mathematical or statistical calculations, but places more emphasis on data interpretation (Karso, 2016). This method is used to study certain cases in depth and in detail regarding students' misconceptions when working on routine practice questions on decimal numbers. The subjects in this research were 4 class VI students at an elementary school in Banyuresmi sub-district, Garut. Apart from that, researchers also collected data through observation, interviews, and giving question sheets to participants involved in the case. Researcher experience is very necessary in the qualitative data collection process. The more detailed the narrative or interview conducted, the better the quality of the resulting qualitative research (Chatra et al., 2023). Collecting data through observation allows researchers to obtain information about behavior, interactions and situations that occur in the field. Meanwhile, interviews are used to obtain more detailed information about certain views, opinions and experiences of participants regarding the case being researched. In-depth interviews were conducted with selected students and teachers to obtain complete and detailed data. The interview process was carried out carefully and thoroughly (Ahmad & Nasution, 2018). Next, question sheets are given to collect structured data regarding the topic being researched. By using appropriate methods and collecting complete data, it is hoped that this research can make a significant contribution to the development of science and technology. The next step is to analyze each student's answer and its suitability to what the student said when the interview was carried out. Of course, this is carried out to validate the suitability between the students' misconceptions in their answers and the things conveyed during the interview. So that later a conclusion can be obtained about what misconceptions occur in class VI students when studying decimal number material through providing routine practice questions.

Result and Discussion

Mathematics is indeed one of the most important and partial subjects in elementary school. This subject is very fundamental and useful for helping students understand various basic concepts and skills that can be used in everyday life. In modern society, having a thorough

understanding of mathematics is essential to an individual's readiness to face life's challenges. A large number of problems and situations encountered in everyday life, especially in professional settings, require a certain level of proficiency in mathematical reasoning, tools and concepts in order to be understood and dealt with adequately (OECD, 2019). In learning mathematics, students will learn various concepts such as numbers, arithmetic operations, geometry, and statistics. Apart from that, students will also be trained to think logically, critically and systematically in solving mathematical problems. With a good understanding of mathematics, students will also find it easier to understand other subjects such as physics, chemistry and biology. Therefore, it is very important for students to study mathematics seriously and diligently in order to obtain maximum benefits.

The National Council of Teachers of Mathematics (NCTM) guidelines divide mathematics into five content standards, namely numbers and operations, algebra, geometry, measurement, probability, and data analysis (Ayuningtyas, 2022). This content standard in the 2013 curriculum has established several indicators of mathematics learning outcomes for grade VI students related to numbers and operations. These indicators include students' ability to understand the concepts of whole numbers, fractions and decimals. Apart from that, students are also expected to be able to calculate whole number, fraction and decimal operations correctly and be able to solve mathematical problems related to these concepts. Apart from that, the 2013 curriculum also emphasizes the importance of developing critical and creative thinking skills in class VI students in solving mathematical problems. Students are expected to be able to identify mathematical problems, find ways to solve them, and solve the problem correctly. Apart from that, students are also expected to be able to evaluate the solutions found and communicate the results of solving mathematical problems clearly and precisely. By meeting the mathematics learning achievement indicators set out in the 2013 curriculum, it is hoped that class VI students will have good mathematics skills and be ready to face challenges at a higher level of education.

Class VI is the last level of basic education before students enter secondary education. In class VI, students will study various kinds of material, one of which is number material. This material is very important because it is the basis of all mathematics lessons that will be studied at the next level. The scope of number material in class VI includes whole numbers, whole numbers, negative numbers, number arithmetic operations, and the properties of numbers. Students will learn how to determine whole numbers and understand the concept of absolute value. Apart from that, students will also learn how to calculate number operations such as addition, subtraction, multiplication and division. Students will also be given practice in solving problems related to number material. In studying number material in class VI, students need to have a strong understanding of the concept of numbers and their properties. Therefore, teachers need to provide adequate learning and students need to take time to practice working on questions. That way, students will have a strong foundation in studying mathematics at the next level.

Before understanding decimal numbers, there are several prerequisite materials that students need to understand. First, students must understand the concept of whole numbers, because decimal numbers are an expanded form of whole numbers. Whole numbers are numbers that do not have commas or fractions, such as 1, 2, 3, -1, -2, -3, and so on. Second, students must understand the concept of fractions, because decimal numbers are a form of fraction with a denominator of 10 to the power of n. Fractions are numbers that consist of a numerator and a denominator, such as ½, ¾, ⅝, and so on. Third, students must understand the concept of comparison and measurement, because decimal numbers are often used in detailed measurements and comparisons. Students need to understand units of measurement,

such as meters, liters, grams, and so on, as well as how to convert to different units of measurement. Fourth, students need to understand the concept of decimals as numbers that have commas. Students need to understand the position of numbers in decimal numbers and how to perform mathematical operations on decimal numbers, such as addition, subtraction, multiplication and division. By understanding the prerequisite material, students will more easily understand the concept of decimal numbers as a whole and be able to apply it in everyday life day.

Learning in elementary schools, material on decimal numbers is limited to introducing the concept of decimal numbers, writing decimal numbers and their application in everyday life. Students are expected to be able to recognize decimal numbers as fractions with a power of ten in the denominator, and be able to write decimal numbers in decimal or fraction form. Apart from that, students are also expected to be able to apply the concept of decimal numbers in everyday life, such as in measurements, calculating the price of goods, and so on. However, it should be noted that these limits may vary depending on the curriculum implemented by each school. Sometimes, there are schools that provide more advanced material related to decimal numbers, such as arithmetic operations and conversions between units, depending on the student's abilities and interests.

The following are findings from the results in the field regarding how student A works on routine practice questions on decimal numbers:

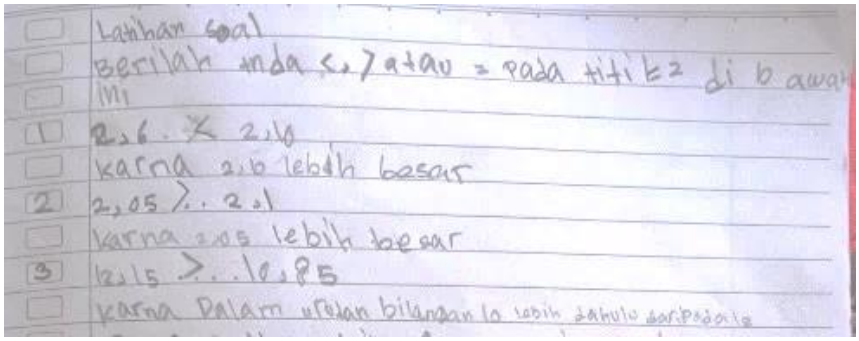

Figure 1. Student A's Answer (Comparing Decimal Numbers)

After being presented with routine practice questions in comparing decimal numbers, students first compare the answers that are not correct.

Results of the interview with the first student:

Teacher: Do you think the three signs you gave are correct?"
Student A: "That's right sir."
Teacher: "So, why did you give this symbol?"
Student A: "Hmm... look at the number sir, so the number is bigger"
Teacher: "Oh, that's how it is."

First, students tend to work on questions based on their previous understanding. This can be seen from one of the example questions about comparing decimal numbers. There are students who think that the decimal number with the number of digits after the comma is more is a larger number.

Then in the next case, after being given routine practice questions in ordering decimal numbers, other students ordered them with incorrect answers. The results show:

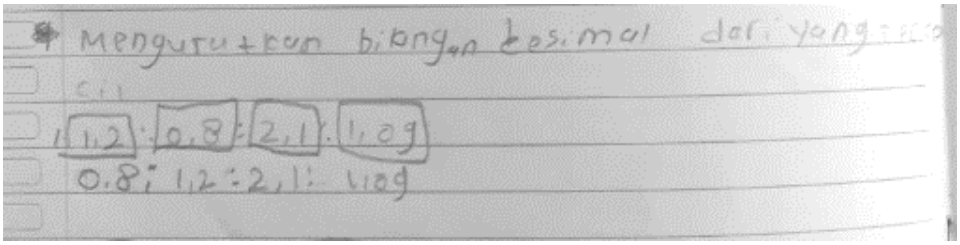

Figure 2. Student B's answer (Ordering Decimal Numbers)

Interview result:

Teacher: "Is this sequence correct or not?"
Student B: "I don't know sir hehe..."
Teacher: "Then why is the sequence like this?"
Student B: "Just look at the large number, sir."
Teacher: "Oh that's right."

This student is not much different from the first student, in that the presence of a number after a comma is considered like the position of a number using a period. So this student sorts according to what he previously understood. In fact, the order of decimal numbers really determines the result of a mathematical operation. Lack of mastery of previous material is the main factor in students' readiness in learning decimal number material.

After completing routine practice questions in comparing and ordering decimal numbers. Another misconception researchers found was that students were inaccurate in adding decimal numbers, the results were:

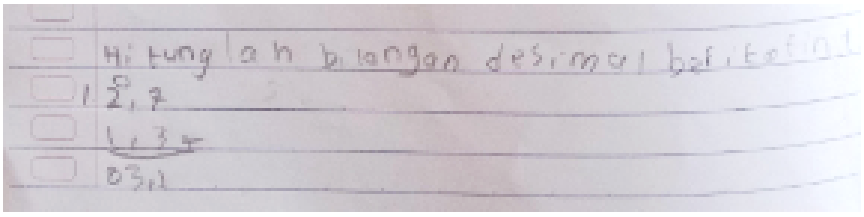

Figure 3. Student C's answer (Adding Decimal Numbers Question No. 1)

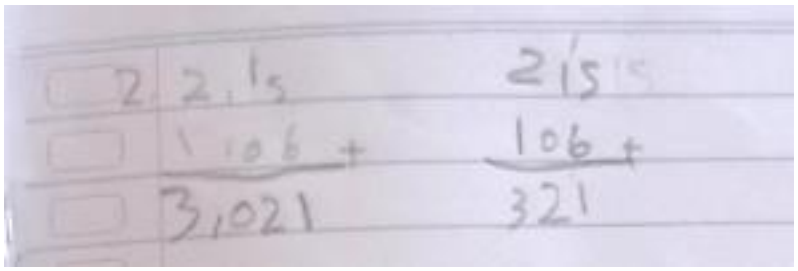

Figure 4. Student D's answer (Adding Decimal Numbers Question No. 2)

The results of interviews with students 3 and 4 are:

Teacher: "Why is the number 1 in question number 1 7+3 stored below the number 1?"
Student C: "I don't know, sir, I'm confused. I'm also doing it."
Teacher: "Oh, I see, so why does there have to be a zero (0) in front of it and where does it come from?
Student C: "Doesn't a decimal number have to have a zero (0) in front of it?" Teacher: "It's not always like that, yes.

Student D

Teacher: "Let me ask if the number zero (0) can be added to other numbers?"
Student D: "Yes sir."
Teacher: "Well, now remove the commas and try to solve it (students solve the same number) pay attention to how to solve it. Why is the way to calculate decimal numbers different from integer numbers?"
Student D: "Because this one has a comma, Sir, I didn't add it to the number in front of the comma."
Teacher: "Oh, it seems like that, huh."

Based on findings from observations, case studies, and interviews with several students in learning mathematics regarding decimal numbers, in the addition calculation operation, students still made mistakes in working on the questions given. This can result in fatal errors in the calculation results.

The researcher's analysis is based on the results of student answers and interviews conducted: 1) Student A thinks that the more numbers after the comma, the number is considered to be the largest number, one of which is in question number 1 comparing 2.6 with 2.10 students A answers that 2.10 is greater than 2.6. Of course, there are students' misconceptions about the material in calculating operations for division and fractions that students have not yet mastered. This case could also have an impact on subsequent understandings of the concept of decimal numbers which will also be wrong. 2) Likewise with student B, his misconception is almost the same as the first student, this student does not see the large value of the number in front of him, but looks at the large number of numbers written. 3) In the case of student C, apart from the incorrect understanding of the addition calculation operation, this had an impact on the results of calculating decimal numbers and the results were also wrong. 4) Meanwhile, for student D's answer, the concept of adding decimal numbers is different from adding whole numbers.

After analyzing several cases above, the solution requires efforts to improve students' understanding of decimal number material. Teachers can provide more detailed and varied explanations, as well as provide examples of different questions to improve students' understanding and application skills. Apart from that, technology such as calculator applications or online math games can also be an alternative to help improve students' understanding of decimal number material.

Decimal numbers are an important mathematical concept for students to understand because they have many applications in everyday life. If students do not understand the concept of decimal numbers, this can impact their ability to calculate and understand quantities expressed in decimal numbers. The first impact that may occur is difficulty in calculating and comparing quantities expressed in decimal numbers, such as the price of goods or the weight of an object. This can lead to errors in calculations or making wrong decisions in purchasing or using a product. Apart from that, difficulties in understanding decimal numbers can also affect students' ability to understand and use more complex mathematical concepts, such as fractions or percentages. Because decimal numbers are the basic foundation of these concepts. The final impact is a lack of preparation for exams or tests that test students' understanding of decimal numbers. Most math tests will test a student's understanding of decimal numbers, so if students don't understand the concept, they may have difficulty completing the test and getting a good grade. Therefore, it is important for students to understand the concept of decimal numbers in order to develop their mathematical skills and prepare themselves well for the future.

A good understanding of decimal numbers is important for students in studying mathematics. If a student has difficulty learning decimal numbers, this can affect their ability to understand more complex mathematical concepts in the future. One of the negative impacts that can occur is difficulty in understanding the concepts of fractions, percentages and ratios. Students who do not understand decimal numbers well may also have difficulty calculating the mean, median, and mode. Apart from that, the inability to understand decimal numbers can also affect students' abilities in other fields, such as science and technology. Because many technology applications use the concept of decimal numbers, a good understanding of this will help students face challenges in the future. Therefore, it is important for students to understand

the concept of decimal numbers well. Teachers can help students by providing clear examples and ensuring that students can master the concept before moving on to more complex math topics.

After being given routine training on decimal numbers, there are several parts of the concept that need to be analyzed to understand the concept of decimal numbers in more depth. The following are several parts of the concept that need to be analyzed: 1) Understanding Decimal Numbers. In this section, it is necessary to understand the meaning of decimal numbers as a whole. Decimal numbers are numbers that have a comma to separate the whole number (before the comma) and the fractional number (after the comma). In decimal numbers, each digit to the left of the comma has a value 10 times greater than the digit to the right of the comma. 2) Decimal Number Operations. After understanding the meaning of decimal numbers, it is necessary to analyze decimal number operations. Decimal number operations include addition, subtraction, multiplication and division. When operating decimal numbers, you need to pay attention to the position of the comma on the two numbers to be operated on, because the position of the comma will affect the resulting operation results. 3) Convert Decimal Numbers to Fractions and Vice Versa. The next part of the concept that needs to be analyzed is the conversion of decimal numbers to fractions and vice versa. This conversion can be done by understanding the concept of division and multiplication by the number 10, as well as being familiar with decimal numbers such as 0.1; 0.01; 0.001; etc. By understanding this part of the concept, it will be easier to solve mathematical problems related to decimal numbers. By understanding the three parts of the concept above, it is hoped that it can help improve understanding and ability in operating decimal numbers.

Misconceptions about decimal number material can be quite a serious problem for students, because this material is an important basis in mathematics. However, there are several alternative solutions that can be provided to help students overcome these misconceptions. Misconceptions or conceptual errors in understanding decimal number material often become obstacles for students in learning mathematics. However, there are five solutions that teachers can use to deal with students who experience misconceptions in understanding decimal number material.

First, teachers can identify the source of conceptual errors in students by providing practice questions or diagnostic tests. That way, teachers can find out the conceptual errors that most often occur in students and can correct them specifically. Second, teachers can use more interactive and fun learning methods such as games, simulations or showing case examples that are relevant to everyday life. With this method, students can more easily understand the concept of decimal numbers and reduce any misconceptions that may occur. This will help students better understand the material in a more effective and efficient way. Third, teachers can give examples of cases from everyday life involving decimal numbers. This can help students to better understand the relevance and use of decimal numbers in real life, or teachers can provide more and varied exercises, so that students can practice more and strengthen their understanding of decimal number material. These exercises can be adapted to students' abilities and needs, so that they can help them achieve better results in learning mathematics. Fourth, teachers can provide continuous and constructive feedback on student answers. By providing regular feedback, students can more easily understand their conceptual errors and correct them gradually. Fifth, students can be invited to discuss and collaborate in solving misconception problems. In this case, teachers can facilitate discussions that focus on problem solving, problem solving is students' efforts to find solutions to the problems they face using the knowledge, skills and

understanding they have. This process is carried out to resolve the problems given or faced (Maulyda, 2019). So students can help each other and learn from each other.

Conclusion

Based on the results and discussion above, it can be concluded that teachers need to identify the source of conceptual errors in students by providing practice questions or diagnostic tests, teachers need to use learning methods that are more interactive and fun, teachers can provide examples of cases from everyday life involving decimal numbers. , teachers can provide continuous and constructive feedback on student answers and students can be invited to discuss and collaborate in solving misconception problems. So it is hoped that it can help teachers overcome students' misconceptions about decimal number material and help students to understand the concept better and be able to more easily and effectively understand decimal number material, so that they can achieve better learning outcomes and prepare themselves well for mathematical abilities. higher in the future. Then the teacher's role should be to provide a clear and thorough explanation of decimal numbers and provide appropriate examples. Using tools such as mathematical manipulatives or visual models can also help students understand the concept of decimal numbers better, and teachers can provide lots of exercises and examples. relevant cases, and provide teaching materials that are interesting and easy to understand. Apart from that, the use of visual media such as pictures, videos and teaching aids can also help students understand the concept of decimal numbers better. Furthermore, hopefully there will be researchers who can create didactical designs regarding this decimal number material. Applying didactic design can help overcome students' learning barriers in understanding the concept of fractions in decimal fraction material (Walida., et al, 2023). So it is hoped that there will be further research on the didactical design of decimal numbers that can be used to overcome students' difficulties in learning.

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