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ANALYSIS OF MATHEMATIC CRITICAL THINKING ABILITIES OF 4TH CLASS PRIMARY SCHOOL STUDENTS ON FRACTION MATERIAL AS WELL AS GENDER DIFFERENCES

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Abstract

The purpose of this study was to assess the mathematical critical thinking abilities of fourth-grade elementary school students. The research was conducted on a sample of students from class IVB at SD Negeri 1 Gatak, who were given a written test consisting of 4 questions on equivalent fractions to evaluate their mathematical critical thinking abilities. The study was titled "Analysis of the Mathematical Critical Thinking Ability of Grade IV Elementary School Students on Equivalent Fraction Material in Terms of Gender Differences". The results of the research indicated that female students outperformed male students in critical mathematical thinking. This conclusion was supported by recorded interviews with several research subjects during the preliminary study, where it was found that many of the subjects struggled to comprehend the steps required to solve mathematical problems based on critical thinking skills. Furthermore, the teachers had not provided examples of questions geared towards critical thinking skills, nor had they implemented teaching concepts based on mathematical critical thinking skills.

Keywords: mathematical critical thinking skills, gender differences, equivalent fraction

Abstrak

Penelitian ini dilakukan dengan tujuan untuk memahami kemampuan berpikir kritis matematis siswa kelas IV. Tes tertulis sebanyak 4 soal dengan materi pecahan setara berdasarkan indikator kemampuan berpikir kritis matematis akan dilakukan pada sampel/populasi subjek penelitian yaitu mata pelajaran kelas IVB SD Negeri 1 Gatak. Peneliti melakukan penelitian terhadap pecahan senilai yang berkaitan dengan perbedaan gender dengan judul “Analisis Keterampilan Berpikir Matematis dan Kritis Siswa Kelas IV”. Analisis penelitian menyimpulkan bahwa perempuan lebih baik dalam berpikir kritis matematis dibandingkan laki-laki. Hal ini juga dibuktikan dengan rangkuman hasil rekaman wawancara peneliti terhadap beberapa subjek penelitian pada bagian pendahuluan. Artinya, subjek belum sepenuhnya memahami langkah-langkah penyelesaian masalah matematika berdasarkan kemampuan berpikir kritis matematis yang dimiliki guru. Kelas tidak memberikan contoh soal terkait keterampilan berpikir kritis matematis yang dipahami, dan guru tidak menerapkan konsep pembelajaran berdasarkan keterampilan berpikir kritis matematis.

Kata kunci: kemampuan berpikir kritis matematis, perbedaan gender, pecahan senilai

INTRODUCTION

Mathematics is a field of science that studies numbers, patterns, shapes, and the spaces they fill as well as their sizes and variations. Mathematics is so important in many fields that it has been dubbed the "Queen of Sciences" such as science, health, finance, etc. Mathematics arises when a person is faced with complex problems that involve mental processes to solve sets, structures, spaces, or changes. Mathematics is formed empirically from the experience of a human being. This experience is then processed in a relational and analytical world

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through thinking. Mathematics has a global (Universal) value. Mathematical concepts arise from the thinking process, so logic is the basis for the creation of mathematics (Nur, 2013).

According to Presseisen (Rochaminah, 2008), thinking is a mental activity to expand knowledge. The results of thinking can be ideas, insights, approaches, arguments, and decisions (Abdullah, 2016). Therefore, from this explanation, it can be seen that thinking is the basis for going to the next step. Johnson said critical and creative mathematical thinking allows students to examine problems systematically and overcome various challenges in an organized manner (Johnson, 2006). Develop innovative questions and design relatively new problems.

Developing critical thinking skills aids in the orientation of appropriate thinking and working and also facilitates the accurate evaluation of external factors. Thus, analytical thinking skills are important for solving problems as well as finding solutions. Developing critical thinking requires integrating various elements such as observation, analysis, reasoning, judgment, decision-making, and persuasion. The more a person improves these skills, the better their ability to deal with problems (Saputra, 2020).

The importance of emphasizing critical thinking skills in students is supported by views related to mathematics education with two directions of development, which can meet current and future needs. The perspective needed today is mathematics learning which leads to an understanding of the various mathematical concepts needed in solving a mathematical problem and thinking logically, systematically, and carefully (Sumarmo, 2002). This is very necessary for humans in their daily lives and also to face the future (Kharisma, 2018). The term "mathematical thinking" according to (Sumarmo, 2010) can be our approach to mathematical problems or the techniques used to solve challenging mathematical problems. Based on this understanding, mathematical ability can also mean critical thinking ability. Mathematical thinking can be classified into two levels, in terms of the depth and complexity of mathematical activities: low-level (low-level mathematical thinking) and high-level (high-level mathematical thinking).

One of the math materials that encourage students to think critically is fractions worth. Fractions Worth is an elementary school material in odd semesters that is taught to grade IV students. Fractions worth is one of the teaching materials of elementary school mathematics. Fractions worth are fractions that are written in different formats but have the same value

(Oktavia, 2021). Fractions worth have a unique shape and fractions worth are fractions that have the same value if the numerator and denominator are multiplied or divided by the same number, except zero. Examples of equivalent fractions such as 2/3 and 6/9 can be simplified by multiplying or dividing the numerator and denominator by the same number, except zero. For example, if the numerator and denominator of the first fraction are multiplied by 3, the result becomes the second fraction. Conversely, if the numerator and denominator of the second fraction are divided by 3, the result is the first fraction.

This study reviewed the results of mathematical critical thinking based on gender differences. According to (Gani, 2019), Gender is a cultural concept that refers to the characteristics that distinguish women and men biologically and behaviorally, mentally, and socio-culturally. Although there are differences between men and women, their roles in society may be based on certain boundaries such as equality, justice, and tolerance. In this context, it is important to understand and respect gender differences and develop good and inclusive communication between men and women. affect gender differences to realize gender equality in society, (Gani, 2019) states that gender equality is a state in which women and men enjoy equal status, conditions, positions, and all rights. Rights and development possibilities in all aspects of family life, state, and nation.

In the research that the researchers conducted, it will be investigated whether gender differences affect the results of the analysis of mathematical critical thinking skills of grade IV elementary school students on the material of fractions worth.

In this preliminary study, several studies are relevant to the research case to be studied, namely research (Hikmah & Kartika, 2022) found that the results of research on analytical thinking skills of seventh-grade junior high school students showed that most of the results of students' critical thinking skills were at a low percentage of 54%, and it was shown that up to 26% of students had medium critical thinking skills, and 20% of students had high critical thinking skills. If high school students do not understand the concept of fractions, then they need to delve deeper into fraction material, one of the primary school subjects. This is supported by research (Wibowo, 2015) that the background of the problem in his research is that students tend to be passive when learning math. After all, it is a process of memorizing concepts and procedures and not applying them to complex problems that require lower levels of mathematical critical thinking and higher levels of understanding and logical

reasoning. The results of data processing using the t-test obtained posttest results in the experimental class and posttest in the control class, obtained a t-count of 2.163 and a significance of 0.036. From the results of this analysis, it can be concluded that if <0.05 then Ho is rejected because there is a difference in the average value between students who are given problem-based learning and those taught with traditional learning models. Judging from the average of the two classes, the experimental class average is 72.01 points, while the control class average is only 59.35 points. It can be concluded that there is a difference in the critical thinking skills of students who use the question. The analytical thinking skills of grade IV students need to be studied further. According to research (Dena Arimby Harianandа & Zainuddin, 2022) concluded that female students have a more critical attitude in problem-solving than male students. Based on these findings, shows that educators must prioritize students' mathematical critical thinking skills when facing a problem.

In this preliminary study, researchers found evidence that encourages mathematical critical thinking in fourth-grade students of SD Negeri 1 Gatak is still lacking. The following are the answers of some students who are evidence.

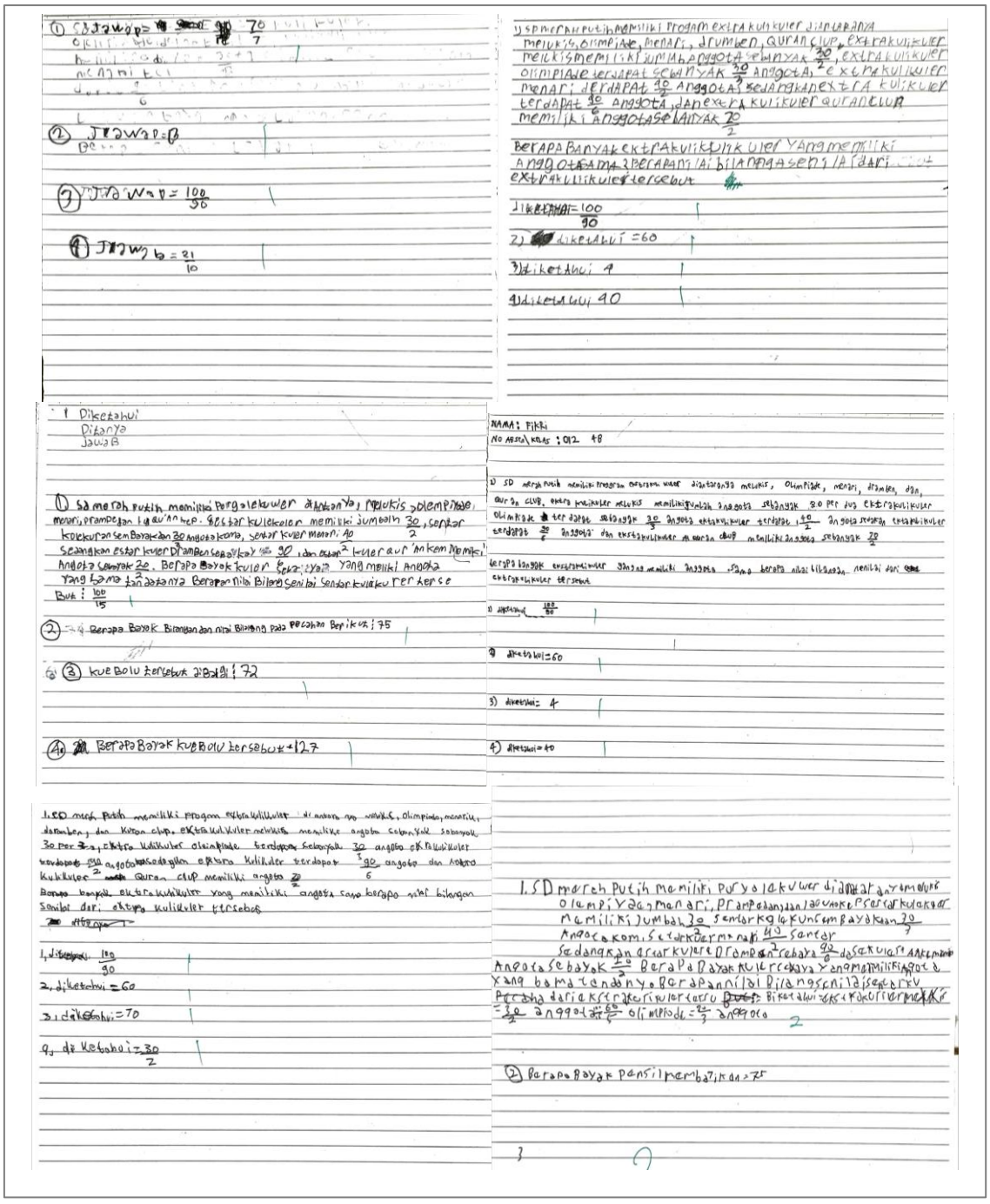

Figure 1. Examples of Written Test Answers of Research Subjects

Based on some written responses of fourth-grade students in answering fractions worth in written form, it seems that it is still lacking. This means that answering a math problem requires consistent, clear, and complete answers. This is certainly evident from some of the results of the Trends in International Mathematics and Science Study (TIMSS) in 2015. Indonesia ranked 43rd out of 49 countries in TIMSS 2003 35th out of about 50 participating

countries worldwide, and finally ranked 36th out of 49 countries in TIMSS 2007. Although math is claimed to the TIMSS is an international study that measures the math and science skills of fourth and eighth graders, the reality shows that the critical thinking skills of Indonesian students are always at the bottom of the rankings. TIMSS is an international study that measures the math and science skills of children in grades IV and VIII. One of the goals of TIMSS is to measure the impact of a new curriculum or to encourage countries to reform their curriculum, particularly in science and math.

This is reinforced by the summary of the results of recorded interviews with several research subjects as follows.

Researcher*: "From the problems that I have given you earlier, which problems do you think are difficult? and why can it be difficult for you"

Subject*: "Question number 3, you don't understand the question."

Researcher*: "Okay, if the fraction worth material itself has been explained by the teacher?

Subject*: "Already sis"

Researcher*: "For examples of fractions worth material from the teacher, has he ever given you a problem that is similar or almost the same as the one you gave you?"

Subject*: "No sis, it's just a simple problem"

Researcher*: "Oh so, if you solve problems with known answers, ask, and answer what the teacher has taught?"

Subject*: "It has never been explained to me"

From the results of these interviews, the subjects were given logical questions based on what they knew and did not understand, and how to solve these questions by providing critical and mathematical answers to these questions. This will support researchers in conducting further research related to mathematical analytic thinking skills in grade IV students.

Based on this explanation, this study aims to determine the mathematical critical thinking ability of fourth-grade students using the topic of equivalent fractions related to gender differences.

METHODS

This section, explains the type of research, research subjects and objects, data and research data sources, research instruments, and data analysis techniques.

Type of Research

This research is descriptive qualitative which aims to explain and analyze social events and activities. According to Anslem Strauss (Strauss & Corbin, 2003), qualitative research is a type of research whose results are not determined using the calculation method. According to Juliet Corbin (Strauss & Corbin, 2003), in qualitative research, researchers develop theories based on empirical data when leaving field data problematic or leaving it open to interpretation, it is important to use qualitative research methods to collect and analyze data inductively. Data analysis is a type of inductive analysis, where the emphasis is on the quality and results of data analysis, and the expansion of the research subject takes precedence over the substance (Strauss & Corbin, 2003).

This qualitative research is based on the post-positivist method which is useful when studying the state of natural objects where the researcher is the main medium and the aim is to collect samples from data sources. The research method is triangulation (combination). Researchers conduct qualitative research to obtain data aimed at understanding, looking for the meaning of the analysis of mathematical critical thinking skills of grade IV elementary school students in the material of fractions worth related to gender differences, after obtaining the truth, both empirically, logically, and theoretically, then the conclusions of data analysis are made expressed in narrative or descriptive language.

Subjects and Objects of Research

The object of this research is the mathematical critical thinking ability of grade IV elementary school students on the material of fractions worth in terms of gender differences. The subject of this research is the population/sample of students or grade IV students at SD Negeri 1 Gatak which is located at Grogol Gatak Delanggu, Gatak, Kec. Delanggu, Klaten Regency, Central Java 57471.

Data and Data Sources

This survey data is qualitative. According to Juliet Corbin (Strauss & Corbin, 2003), qualitative research is inductive data collection and analysis, where the researcher allows questions to emerge from the field data and leaves room for interpretation. This research uses the field method (field research). That is, it is carried out by researching objects to obtain accurate and reliable data regarding the internalization activities of integrity and responsibility character values (Fathoni, 2016).

Researchers use primary data sources as data sources. Primary data is a data source that is obtained directly without intermediaries. According to (Prof.DR. Sugiyono, 2013), primary data is data obtained directly from the source. The data sources in this study were obtained based on the results of data analysis conducted on SD Negeri 1 Gatak students or grade IV students. This data source is obtained from observations and results of interviews between researchers and research subjects, from these results it can later be categorized based on mathematical critical thinking skills on fractions worth material in terms of gender differences in class IV SD Negeri 1 Gatak.

Research Instruments

The instruments in this study consisted of researchers, questions, audiovisual recording devices, notes, and interview guidelines. The research instruments were tested by experienced validators, especially in the field of mathematics education. Some aspects verified in a research instrument are the suitability of the instrument with the research objectives, questions that follow the research indicators, and the use of language in the instrument.

Here, students' mathematical critical thinking skills are tested when answering questions about fractions worth. Students are encouraged to answer problems with clear and coherent steps almost the same as Polya's steps. The stages in solving the problem in question are known, asked, answer, and conclusion. Indicators of mathematical critical thinking skills are as follows.

TABLE 1. Indicators of Mathematical Critical Thinking Ability

No	Indicator Categories	Description of Indicators
1	Interpreting	Understand the problem question and express the problem carefully and correctly

2	Analyzing	Identify mathematical questions appropriately and describe their explanations to facilitate problem-solving in the evaluation stage.
3	Evaluate	Use the correct strategy when solving the problem and perform calculations correctly, completely, and accurately.
4	Inferencing	Identify and obtain answers that are used as appropriate and correct conclusions

In this study, the method of collecting data by providing a written test with four description questions based on the parameters of mathematical critical thinking ability. The data obtained were processed and calculated to obtain the final score. The subject's final score was then divided into three categories as follows.

TABLE 2. Categories of Mathematical Critical Thinking Ability

Category Description Value	Interval
High	75 ≤ 100
Medium	60 ≤ 74
Low	0 ≤ 59

KISI-KISI SOAL TES KEMAMPUAN BERPIKIR KRITIS MATEMATIS

Satuan Pendidikan : Sekolah Dasar (SD Negeri 1 Gatak)
Mata Pelajaran : Matematika
Materi : Pecahan Senilai
Bentuk Soal : Uraian
Jumlah Soal : 4
Alokasi Waktu : 60 menit

Indikator Kemampuan Berpikir Kritis Matematis	Kompetensi Dasar	Indikator Soal	Nomor Butir Soal
1. Menginterpretasi Siswa mampu memahami dan mengekspresikan soal dengan teliti dan benar	3.1 Menjelaskan pecahan-pecahan senilai dengan gambar dan model konkret	Siswa mampu menentukan pecahan yang senilai dari gambar atau model konkret yang disajikan dengan benar	1
2. Menganalisis Siswa mampu mengidentifikasi pertanyaan matematika dengan tepat dan mendekripsikan penjelasannya untuk memudahkan menyelesaikan permasalahan soal pada tahap evaluasi		Siswa mampu menentukan pecahan yang senilai dari gambar atau model konkret yang disajikan dengan benar	2
		Siswa mampu menentukan pecahan yang senilai dari gambar atau model konkret yang disajikan dengan benar	3
3. Mengevaluasi Siswa mampu menggunakan strategi yang tepat dalam menyelesaikan soal dengan melakukan perhitungan	4.1 Mengidentifikasi pecahan-pecahan senilai dengan gambar dan model konkret	Disajikan soal cerita singkat, siswa mampu menentukan pecahan senilai dengan benar	4
4. Menginferensi			

Figure 2. Research Instrument (Question grid)

Siswa mampu mengidentifikasi dan memperoleh hasil yang diperlukan untuk membuat kesimpulan yang tepat			

Selesaiakan soal uraian dibawah ini dengan tepat!

1. SD Merah Putih memiliki program ekstrakurikuler diantaranya melukis, olimpiade, menari, drumband, dan qur'an club. Ekstrakurikuler melukis memiliki jumlah anggota sebanyak $\frac{30}{2}$, ekstrakurikuler olimpiade terdapat sebanyak $\frac{30}{3}$ anggota, ekstrakurikuler menari terdapat $\frac{40}{2}$ anggota, sedangkan ekstrakurikuler drumband sebanyak $\frac{90}{6}$ anggota, dan ekstrakurikuler qur'an club memiliki anggota sebanyak $\frac{20}{2}$. Berapa banyak ekstrakurikuler yang memiliki anggota yang sama? Berapa nilai bilangan pecahan senilai dari ekstrakurikuler tersebut?
2. Dita memiliki kotak pensil sebanyak 12 buah, setiap kotaknya berisi 36 batang pensil. Pada hari ulang tahunnya ia membagikan pensil tersebut kepada 27 temannya. Setiap teman Dita akan mendapatkan jumlah yang sama. Berapa banyak pensil yang diterima tiap teman Dita? Dan tuliskan satu bilangan pecahan yang senilai dengan banyaknya pensil yang diterima temannya!
3. Ibu memotong kue bolu menjadi 8 potong. Kue bolu tersebut dibagikan kepada 4 orang anaknya sama rata. Kemudian ibu membeli 2 kue bolu lagi, sebab anaknya menginginkan kue bolu lagi untuk disantap. Berapa bagian yang akan diterima oleh masing-masing anaknya?
4. Pak Janden berencana membagikan coklat kepada 10 orang anak, sehingga tiap anak akan mendapatkan masing-masing $\frac{1}{10}$ bagian coklat. Tapi ternyata bertambah 10 orang anak lagi yang akan diberikan coklat oleh Pak Janden. Berapa banyak

Figure 3. Research Instrument (Problem)

Then unstructured interview guidelines to assist researchers in analyzing the results of students' answers to questions. The interview aims as additional information to be more in-depth about students' understanding and reactions to the questions tested.

Data Analysis Technique

The data in this section consisted of subjects' written responses, research notes, and recordings of unstructured interviews. The data analysis method uses an interactive model that consists of data collection, data reduction, data presentation, inference, and verification (Prof.DR. Sugiyono, 2013). Data collection was carried out through researchers asking questions related to equivalent fractionation material and examining written responses from research participants. The collected data will be processed based on the research indicators based on the following table.

TABLE 3. Relationship between Mathematical Critical Thinking Ability Indicators and Subject Answers

Indicator Categories	Description of Indicators	Stages of Subject's Written Question Answers
Interpreting	Understand the problem question and express the problem carefully and correctly	Find out: ….
Analyzing	Identify mathematical questions appropriately and describe their explanations to facilitate problem-solving in the evaluation stage.	Asked: ……
Evaluate	Use the correct strategy when solving the problem and perform calculations correctly, completely, and accurately.	Answer: ……
Inferencing	Identify and obtain answers that are used as appropriate and correct conclusions	Conclusion: So, …

At the data reduction stage, identifying and categorizing the suitability of the subject's written test responses including these indicators was carried out. Data presentation was then carried out by grouping gender differences according to the agreement of the subject's written test responses with indicators of mathematical critical thinking ability and placement. Before going to the next stage, researchers triangulated data collection techniques, namely looking at the data collected from observations, subject written tests, and unstructured interviews. Furthermore, the conclusion was drawn by summarizing the results of data analysis related to mathematical critical thinking ability related to gender differences on the topic of fractions worth in grade IV elementary school students.

RESULTS AND DISCUSSION

In this section, a description of the research results and their discussion will be described.

Research Results

This research was conducted on fourth-grade students of SD Negeri 1 Gatak which is located at Grogol Gatak Delanggu, Gatak, Kec. Delanggu, Klaten Regency, Central Java 57471. The research subjects in this study were class IVB with a total of 19 students. The research was conducted by giving the research subjects a written test with four description answer questions based on mathematical critical thinking indicators. After the subject's test answers are collected, the subject's written test answer data will be processed and calculated with a total score/grade. The total score/final score of each subject will later be grouped based on the low, medium, or high category.

Subjects with High Mathematical Critical Thinking Ability Category

In this high mathematical critical thinking ability category, subjects with complete test answers start from interpreting the problem, namely writing and explaining what is known in the problem, analyzing the problem, namely being able to identify what is asked and understand the problem to develop strategies at the evaluation stage, then evaluating the problem. That is by working on the problem with the right solution steps and inferring the problem by concluding the answer correctly.

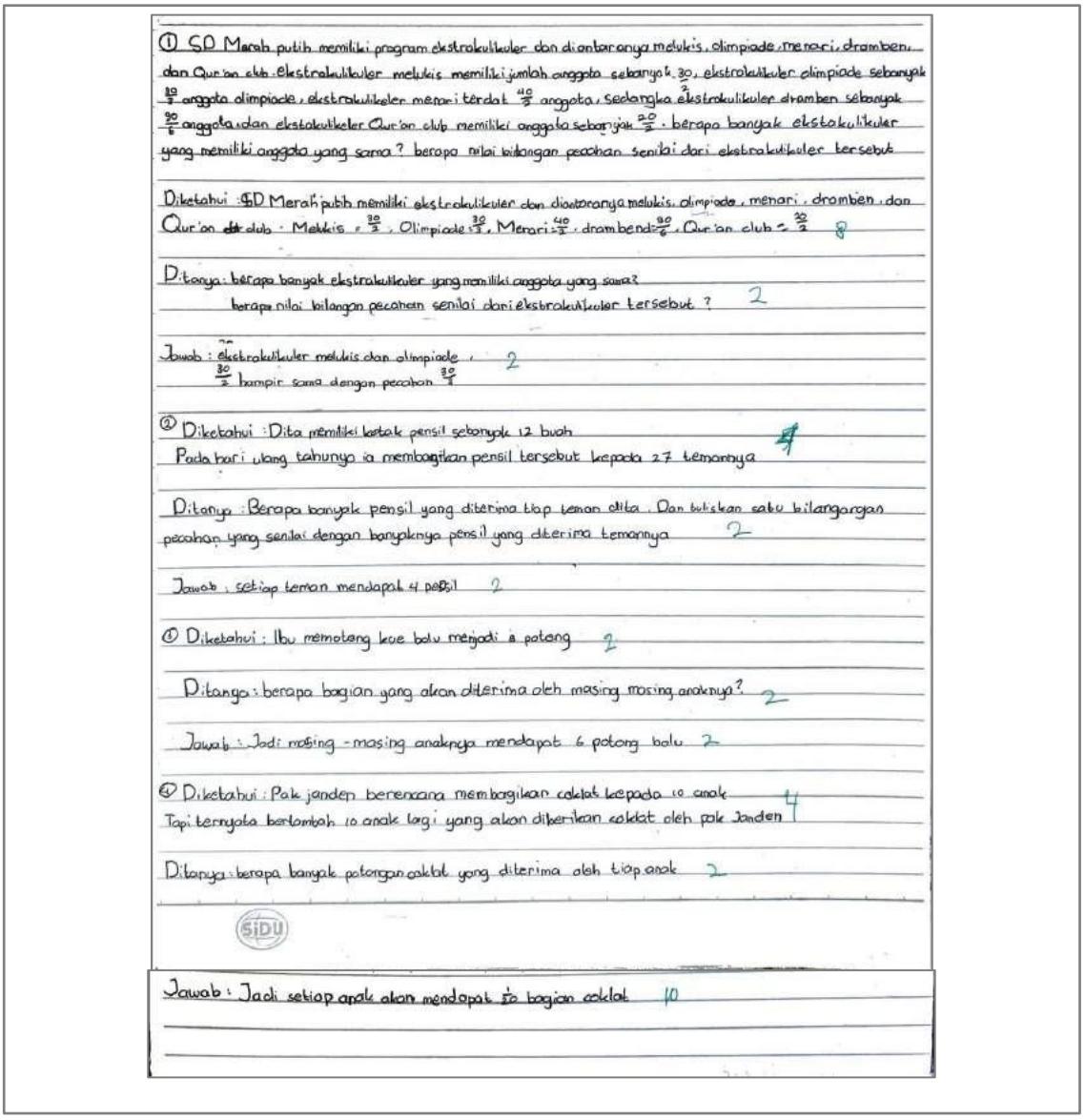

Figure 4. Written Test Answers of Highly Categorized Subjects

In Figure 4 listed above, it can be seen that the subject can solve problems based on indicators of mathematical critical thinking ability. At the interpreting stage, the subject can write and explain what is known in the available problems using a description of his own words. At the stage of analyzing the problem, the subject is also able to know what is asked by the problem but the writing of the words still does not use his own words and understands the sequential steps to solve the problem at a later stage. Then at the stage of evaluating the problem, the subject has also managed to solve the problem correctly. In the last stage, namely inferring the problem, the subject seems to be able to conclude the solution with clear

and creative language using his own words. However, the results of solving the problem are still not entirely correct.

Subjects with Moderate Mathematical Critical Thinking Ability Category

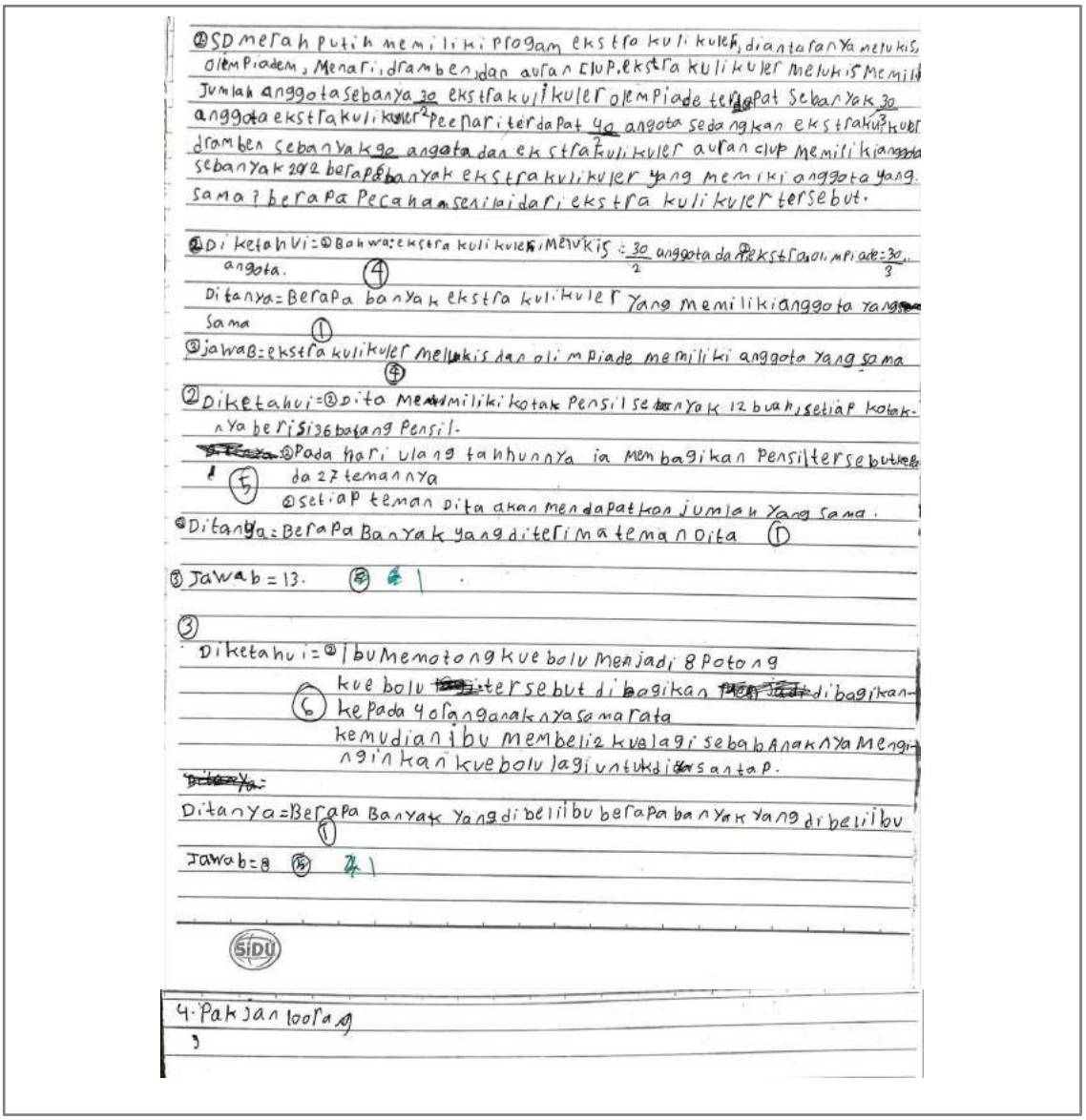

Figure 5. Written Test Answers of Low-Category Subjects

Based on Figure 5, in the moderate category subject, it appears that at the stage of interpreting the problem, the subject can write what is known about the problem but the writing of what is known has not used his own words so that it is easy to understand but is almost the same as the words listed in the problem. At the stage of analyzing the problem,

the subject can write what is asked about the question but the words still do not use their own words. While at the stage of evaluating and inferring, the subject has not been able to compile the right steps to solve the problem and has not been able to conclude the answer with correct and precise language. In this subject with low critical thinking ability category, the subject can interpret the problem and analyze the problem properly and correctly, but at the stage of evaluating the problem and inferring the problem the subject is not yet able, to because at the stage of evaluating the subject should calculate with clear and sequential steps, then it will be concluded at the stage of evaluating the problem. Infer the problem, in his own words based on the answers obtained at the stage of evaluating the problem.

Subjects with Low Mathematical Critical Thinking Ability Category

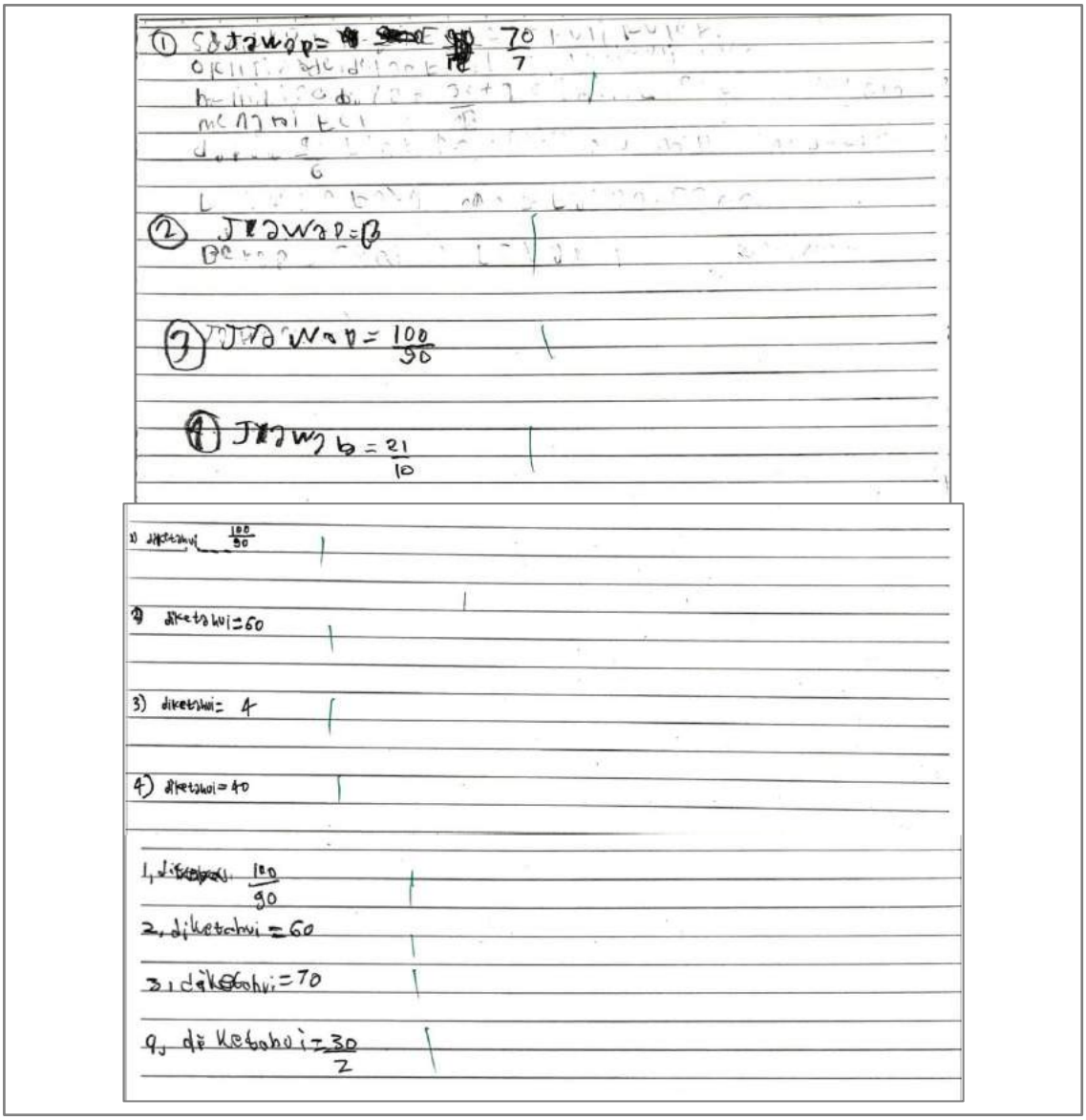

Figure 6. Written Test Answers of Moderate Category Subjects

In Figure 6 above, the subject in solving the problem does not have clear steps on how to get the answer and has not used problem-solving based on mathematical critical thinking skills. At the stage of interpreting the problem, the subject has not been able to write what is known about the problem properly. At the stage of analyzing the problem, the subject has also not been able to state what the question is asked clearly. At the stage of evaluating the problem, the subject has not been able to explain how to get the answer with clear steps. Finally, at the stage of inferring the problem, the subject has not been able to conclude the answer to the problem with a clear step. Correct and precise subjects with this low ability

category, in answering the questions were not serious and seemed random in solving the problem.

Discussion

The following table shows the mathematical critical thinking ability of fourth-grade students of SD Negeri 1 Gatak after being processed and calculating the total score or final score.

TABLE 4. Subject Test Score Results

	Category of Mathematical Critical Thinking Ability			Total
Gender	**High**	**Medium**	**Low**	
Male	0	1 (5,26%)	10 (52,63%)	11
Female	2 (10,52%)	5 (26,31%)	1 (5,26%)	8
Total	2	6	11	19
Percentage (%)	10,52% ~ 10%	31,57% ~ 32%	57.89% ~ 58%	100%

Based on the percentage results of Table 4 above, the data shows that women have higher critical thinking skills compared to men. From the table, we know that the ability to think critically in the high category of men obtained the results of 0% and women 10.52%. Then in the medium category, men get 5.26% and women 26.31%, while in the low category, men get 52.63% and women get 5.26%. Gender differences in this study affect a lot in the processing of research results. This is also supported by research (Dena Arimby Harianandа & Zainuddin, 2022) which concluded that female students are more critical in dealing with problems than male students. Differences in the way men and women think are caused by various external and internal factors. The male brain is associated with the ability to think consistently and fundamentally in science while the female brain is dominant in some points of view. This research is useful for critical thinking skills in student activities. These skills are closely related to the process and its indicators and the ability is one of the characteristics that can be used to identify critical thinking indicators. These skills can help in assessing something more accurately. Therefore, the ability to think critically is very important to solve problems and find solutions (Saputra, 2020).

CONCLUSION

Based on the findings of this research analysis, it can be concluded that gender differences affect the critical thinking skills of fourth-grade students at SD Negeri 1 Gatak. Most of the fourth-grade students with male gender are classified as having low mathematical critical thinking skills. This is encouraged by the results of the percentage of students' mathematical critical thinking abilities, namely subjects with a low category as much as 57.89% with specific data of male gender greater percentage than female, namely 52.63%, subjects with a medium category as much as 31.57% with specific data of female gender greater than male gender, namely 26.31%, and 10.52% of female gender subjects with high critical thinking ability category from male gender none of which are categorized as high mathematical critical thinking ability. This is also evidenced by the summary of the results of the recording of the researcher's interviews with several research subjects in the preliminary study, namely that the subject has not fully understood the steps of solving math problems by answering what is known, asked, and answered. The teacher who teaches class IV, the class that the researcher takes, also has not explained how to solve math problems with these coherent steps such as solving problems based on mathematical critical thinking skills.

Solving math problems with clear, coherent, and complete steps such as what is known by the problem, what is asked, and the answer to the problem has the advantage that students become more aware of the process of how students answer problems correctly and minimize the occurrence of incorrect answers. But the disadvantage of solving math problems with steps like that requires more time and quite a lot of writing. However, it is recommended to solve math problems with steps or stages based on mathematical critical thinking skills, so that it can help daily activities as well, of course.

The researcher suggests that students are encouraged to answer mathematical problems sequentially according to their abilities, then the questions asked to students are always aimed at students' abilities which will help students solve problems regarding mathematical concepts in their lives, and mathematics teachers, especially mathematics teachers at SD Negeri 1 Gatak, can apply the concept of mathematical critical thinking skills such as Polya's Steps in their classes.

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and favor of God I can compile and complete the article with the title Analysis of Mathematical Critical Thinking Ability of Grade IV Elementary Students on Valued Fraction Material in terms of Gender Differences. And secondly, do not forget the support, motivation, and prayers from all parties I thank you for helping me to complete this article well.

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