Analysis of Elementary School Students' Learning Difficulties on Square and Rectangular Material

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Abstract. Students do not achieve the expected learning outcomes when they experience difficulties learning mathematics. Because the difficulties faced by students can hinder the achievement of learning goals if left unchecked, educators must assess and immediately take action. The aim of this research is to analyze the difficulties of fifth grade students in one of the schools in Bandung Regency, Bandung City in answering and understanding questions about the area of square and rectangular shapes. This research uses a type of qualitative research in the form of a written description test on square and rectangular area material given to 3 school students in Bandung. The results of the analysis show that students have difficulty answering questions related to the area of squares and rectangles. Through the results of the analysis, it can be seen that the factors causing students' difficulties in working on problems with flat shapes are (1) internal factors, namely (a) students do not understand the concept, have difficulty applying the principles and properties of squares and rectangles, and have difficulty in solving verbal problems of area of a square and rectangle. rectangle (b) students do not memorize multiplication and (c) students are not careful in working on the questions. (2) external factors in the teacher's explanation that students do not understand. The efforts made by teachers are to use effective media and learning models, motivate students, help students when they face difficulties, and learning mathematics requires repetition and increasing the frequency of practice questions, so that students can understand mathematical concepts. Efforts that students can make are by taking part in tutoring and additional study outside of school and studying regularly at home with the guidance of older siblings or parents.

Keywords: Learning Difficulties, Mathematics, Square and Rectagular

INTRODUCTION

Mathematics is a science that studies and solves mathematical problems and calculations (Ali, 2016). Because it is considered abstract, meaning it only exists in the human mind, mathematics is used in solving problems and comes from the real world (Hudoyo in Fahrurrozi, 2017). Based on this description, it can be concluded that mathematics contains problems, thinking tools, and communication tools. Concepts related to numbers, symbols, and images are the subject of mathematical research.

Mathematics, as basic knowledge taught in schools, is different from other subjects. Mathematics teaches logical, analytical, systematic, critical and creative thinking, as well as the ability to create together. Geometry is one of the mathematics subjects taught in elementary schools. According to Hock in (Kusnadi, et al, 2020: 17), geometry is taught from elementary to intermediate level. Mathematics is taught from Elementary School (SD) to University (PT), according to Karim (Aledya, 2019: 2). This shows how important mathematics is in the development of technology and education today. Mahmudah (in Musto'inah, et al, 2023: 319) states that the teaching and learning process of mathematics, especially in the world of education, often experiences difficulties. Mathematics has abstract

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ideas that contain symbols, so before these symbols are manipulated, students must understand mathematical concepts first.

Mathematics as a basic science must be mastered well by students, especially since elementary school. According to Piaget's cognitive theory, elementary school (SD) students still think concretely, and at this age (between 7-8 years to 12-13 years) they are included in the concrete operational stage. Based on this cognitive development, most elementary school students experience difficulty in understanding abstract mathematical concepts. Therefore, mathematics learning in elementary schools should be adapted to the stage of cognitive development of elementary school students, namely by using concrete objects to help children understand abstract mathematical concepts. This is in line with the opinion of Isrok'atun (2018:12) who states that mathematics learning in elementary schools must connect abstract mathematical concepts with something concrete.

In fact, many primary school students think that mathematics is very difficult to learn and many do not like mathematics lessons. This also supports the idea that mathematics is a subject that is difficult for students to understand (Amin, 2021). One of the scopes of mathematics is the geometry of flat square and rectangular shapes. According to Usiskin in (Sari, et al, 2021: 187) geometry is the only science that can link mathematics to the physical forms of the real world, flat square and rectangular shapes can allow ideas from other fields of mathematics to be drawn, as well as geometry can provide a non-single example of a mathematical system. According to Nur'aeni in (Sari, et al, 2021: 187) he believes that the role of plane geometry in the field of mathematics studies is very strong, not only because it is able to develop students' thinking processes, but also really supports many other topics in mathematics.

Students' difficulties in solving problems related to the area of flat figures, such as squares and rectangles, have a significant impact on Indonesia's PISA (Program for International Student Assessment) ranking. Based on the PISA 2022 results, Indonesian students' mathematics scores have decreased, with an average of 365, far below the OECD average of 472 points. This decline suggests that many students are not achieving the minimum level necessary to function effectively in the 21st century. One of the impacts of students' difficulties in the area of squares and rectangles is students' low understanding of mathematical concepts. Many students have difficulty understanding basic mathematical concepts, including how to calculate the area of a flat shape. This results in difficulties in applying their knowledge in everyday situations (Angriani et al., 2024).

According to recent research, around 82% of Indonesian students do not reach level 2 on the PISA test, which is the minimum level to succeed in the modern world. This shows that

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the majority of students face difficulties in solving simple mathematical problems and applying their knowledge in everyday life. Education experts emphasize the need for fundamental reforms in mathematics teaching methods to improve students' understanding of basic concepts and build their confidence in solving problems (Azhar et al., 2023).

Overall, students' difficulties in solving plane area problems contributed to the stagnation of Indonesia's PISA results and demonstrated the need for new approaches in mathematics education to increase mathematical literacy among elementary school students.

Cooney (Yusmin, 2016) said that mathematics learning difficulties are classified into three types, including (1) students' difficulties in using concepts, (2) students' difficulties in using principles, (3) students' difficulties in solving verbal problems. This difficulty occurs because while mathematics learning is provided by teachers to students in an informative manner, this problem occurs because students only get information from the teacher, so the students' level of understanding does not last long. The teacher's role in teaching mathematics is very important. Teachers must be able to teach mathematics in a meaningful way, because this will influence the way students understand it. This is important for teachers' professional competence, and teachers must carry out this role when building mathematics learning so that students do not make mistakes.

Based on the results of basic mathematics competency data in elementary schools compiled by the Ministry of Education and Culture, it is clear that the flat and spatial building materials studied by elementary school students have quite a large portion, ranging from 40-50% (Permendikbud, 2018). This shows that flat shapes are not only important in mathematics but also in everyday life (Cherif et al., 2017). This is due to the fact that plane material is considered a subject that can improve students' critical thinking, visual thinking, problem solving, deductive reasoning, argumentation and logical thinking (Jupri, 2017). However, sometimes it is difficult for students to understand plane material when studying it. This is caused by the difficulties faced by students in forming appropriate constructions, which require precision in measurements, a long time, and many students even have difficulty finding the correct answer.

In studying the material on the area of squares and rectangles, it is not enough just to transfer knowledge or lecture methods, but it must be done by understanding the concept through direct involvement of students in learning. It is very important for students to have a deep understanding of these shapes so they can apply their skills in lessons. Therefore, teachers are very responsible for helping students understand flat shape material by providing more explanations than just conveying the material (Melisari et al., 2020).

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Based on this description, this research aims to find out what the difficulties are and analyze the obstacles experienced by students in the material on square and rectangular shapes. So that in the future it can help teachers predict and anticipate problems that occur in square and rectangular area material.

Based on the description above, the difficulties experienced by students are due to the obstacles that occur to students in the square and rectangular area material. Based on this background, the researcher intends to describe an analysis of students' difficulties in working on square and rectangular area problems.

METHODOLOGY

This research was carried out in one of the elementary schools in Bandung. The subjects of this research were 5th grade students at an elementary school in Bandung, totaling 3 students. The research approach used in this research is a qualitative approach. According to Locke (Creswell, 2015) qualitative research is a type of interactive research where researchers are involved in ongoing experiences. During this participation process, a series of strategic, ethical, and personal issues emerge.

Meanwhile, Eka Lestari and Mokhamad Ridwan Yudhanegara (2015) stated that qualitative research is a way to explore and understand the meaning that is ascribed to social or humanitarian problems carried out by a number of individuals or groups of people. Therefore, a qualitative approach is very suitable for uncovering various central phenomena that emerge in this research. Written tests, interviews, and field notes are exploratory descriptive tools used in this research. Arikunto (2016) states that exploratory research is a type of research that aims to explore thoroughly and in depth the factors that influence certain events. This research involved three fifth grade students at an elementary school in Bandung. This research uses a written description test which refers to the fifth grade elementary school mathematics curriculum.

This research uses several data collection techniques, including interviews, questionnaires and documentation. Interviews were conducted to obtain data sources with resource persons, three students on fifth grade students from one of the elementary schools in Bandung, with the results of interviews regarding the causes of difficulties experienced by students in learning mathematics on the area of squares and rectangles. Observations were carried out during mathematics learning with the aim of finding out students' interest and motivation in participating in learning. A questionnaire is a data collection technique that is carried out by giving a collection of written questions to students directly. The results of the questionnaire given to participants showed that students had difficulty understanding the area of squares and rectangles, such as difficulty remembering formulas, recognizing the

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elements of plane shapes and even difficulty in multiplication and division. Lastly is documentation by showing the results of the difficulties experienced by students when working on square and rectangular area problems to complement existing findings.

RESULTS AND DISCUSSION

Based on the data analysis carried out by researchers, namely the results of interviews, observation results, research questionnaires and documentation, several things were obtained as follows. The results of interviews conducted with several fifth grade students at one of the elementary schools in Bandung, stated that they experienced problems in understanding the material or students had learning difficulties, namely being unable to differentiate between various flat shapes and their elements, having difficulty remembering square and rectangle shapes. length and its elements, difficulty understanding the formula for the area of a square and rectangle, as well as the basics of multiplication and division which students have not mastered well.

When the observations were made, the researcher gave questions about square and rectangular shapes so that students then found out their area. Overall, students experienced difficulties when faced with the questions given. Usually the teacher only presents the context of a normal problem which is simply remembering a formula that has been taught by the teacher. This section presents the research findings, supported by relevant tables, figures, or charts to provide clear and visual representation of the data. The discussion should connect the results to the research question, offering an analysis that ties them back to the study's objectives or hypotheses. Additionally, the results should be compared with previous studies, highlighting any alignments or conflicts with existing research and theories. The discussion may also explore the implications of the findings, both in terms of theoretical contributions and practical applications, providing a comprehensive interpretation of the results.

This research focuses on looking at students' learning difficulties in the area of squares and rectangles. The difficulties experienced by students as explained in the discussion include; difficulty distinguishing between square and rectangular shapes and their elements, difficulty remembering the formula for the area of a square and rectangle, and the basics of multiplication and division are not yet strong.

Of the 3 students who answered the square area question, none of the students wrote the unit of length in cm when answering the square area question, only 1 student only answered the question by writing the formula for the area of a square and then calculating the results, this shows that the percentage of students answered the question by writing the formula The square area first before calculating the results is 33.3% and the percentage of students who

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do not write down the square area formula first before calculating the results is 66.6%, then there is still 1 student who answered incorrectly the product of the square area. Meanwhile, for the question about the area of a rectangle, only 1 student answered all the questions correctly, and 2 students answered the question incorrectly, meaning that the percentage of students who answered the question about the area of a rectangle correctly was only 33.3% and the percentage of students who answered the question incorrectly was 66.6%, then there was still 1 student who answered incorrectly the product of the area of the rectangle.

Percentage of students in answering the question about the area of squares and rectangles above, it is still weak, there are several things that need to be noted about this. To analyze students' answers, we must first look at the form of the questions given to them. Figure 1 shows the form of the questions given to them.

Determine the area of a rectangular shape

8 cm   How the area of the shape?
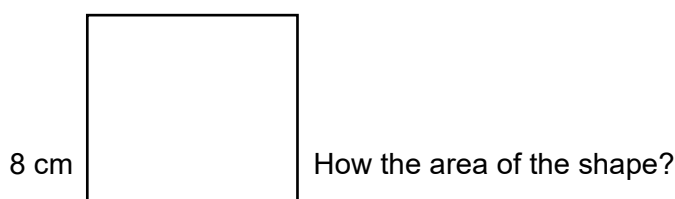
Figure 1. The Question About Area of a Square Figure

Overall, various forms of errors made by students will be presented in answering questions about the area of squares and rectangles.

1. Students' Difficulty in Using Mathematical Concepts

Understanding concepts is a very important aspect in learning, especially mathematics, because by understanding concepts students can develop their abilities in each subject matter. A concept that students master will be better if it is accompanied by application in everyday life. The stage of understanding abstract mathematical concepts can be improved by realizing these concepts in teaching practice in the classroom (Isroqmi, 2020). Students are said to understand a concept if they are able to abstract the same properties that are characteristic of the concept being studied, and are able to generalize these concepts. Students' ability to understand mathematical concepts means they must be able to use or apply what they understand into the learning process. If students understand well, they will be better prepared to answer mathematical questions or problems in the lesson.

One of the problems with students' difficulties in using mathematical concepts in this research is that students do not know the units for the area of squares and rectangles and

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do not even include the units. Some students even incorrectly use circumference units as area units. This error is also referred to as an error of fact (Lestari et al., 2016), this is motivated by students not being able to explain the meaning of the terms that represent the concept of square and rectangular figures or students' lack of understanding of how to read units correctly (Fatahillah et al. al., 2017).
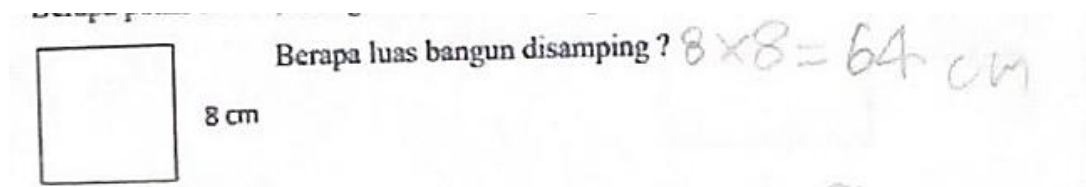
Figure 2. Students Mistake in Entering Square Area Units

Based on the results of interviews conducted with SPS students, it was found that students had difficulty expressing the unit symbol for square area.

Researcher : Now look at your answer again, you answered that the unit of square area is centimeters, is that correct?

Student : Yes, that's right miss.

Researcher : Are you sure the area units are correct? Try to recall past learning.

Student : Hmm, what is it miss? Oh yes, the unit for area should be centimeters squared, miss, if for circumference the unit should be centimeters.

Researcher : You must always understand the use of area units for flat shapes.

Student : Yes miss, I'll like to forgot the units.

From the results of interviews with SPS students, it can be seen that students were not correct in working on these questions because students did not understand the concept of square area units. Students also think that area units are not that important and only focus on the results of the work.

2. Students' Difficulty in Using Mathematical Principles

In learning mathematics, the use of principles is very important for students to understand because they are closely related to the way students solve a given problem or problem. According to Cooney (Yusmin, 2016), the use of principles in mathematics learning includes discovery activities, looking for relevant elements, and deducing meaning to applying what they find. One of the difficulties in this research is that students understand the concept of the material regarding the area of squares and rectangles, but they cannot solve a given problem.

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In line with the opinion of Nurhamsiah., et al (2016) who stated that students have difficulty and cannot express the meaning and apply mathematical principles. Apart from that, the problems found related to the use of principles were that students faced difficulties in carrying out discovery activities about something, faced difficulties in interpreting the form of questions that had been presented, and felt confused about the form of existing questions. Students are unable to describe the area of a rectangle in the problem given. This could be motivated by the students' inability to determine the relevant factors contained in the drawing of a rectangular shape, and their weak understanding of multiplication operations so that students are unable and mistaken in calculating the resulting area of a rectangle. Purbaningrum (2019) supports this by stating that difficulties in using principles are characterized by students' difficulty in discovery activities about something and difficulty determining relevant factors, and as a result they are unable to abstract patterns.
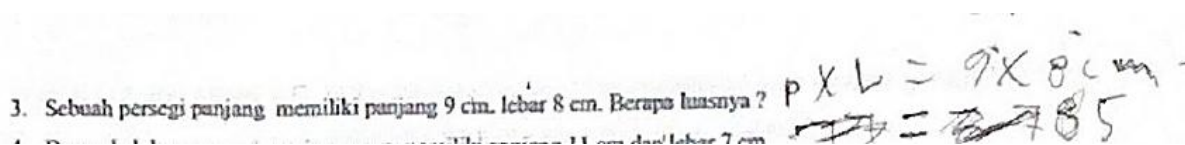
Figure 3. Students' mistakes in calculating the area of a rectangle

Based on The results of interviews conducted with RAN students showed that the students were mistaken in calculating the area of a rectangle so that the answers they wrote were wrong. This can happen because students do not understand the material on multiplication operations and tend to only memorize the multiplication tables so that their attachment to the material becomes weak.

Researcher   : How do you find the area of the rectangle?

Student   : Using the formula length multiplication width miss, the numbers are multiplied.

Researcher   : Try looking at your answer again, is it correct?

Student   : hmm, how much is 9 times 8? The answer is wrong, right miss?

Researcher   : Where did you get the result 85?

Student   : I forgot miss, because it's too hard to memorize the multiplication.

In this question, RAN have written the formula and calculated the area of a rectangle correctly, the student wrote the area of a square = P x L = 9 x 8 = 85. You can see that the result of calculating the area of a rectangle is 85, which should be 72 cm^2. Students only get to the procedure, are not able to conclude the solution obtained and do not write area units correctly. From the results of interviews with RAN students, it can be seen that students do

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not understand multiplication calculations. Students will study it again at home. Apart from that, the factor that causes students to have difficulty learning is not understanding the teacher's explanation when explaining the concept of multiplication.

3. Students' Difficulty in Solving Verbal Problems

Verbal problems are closely related to understanding certain terms, so students' ability to understand various terms is very important for solving problems. According to Abrar (2018), students' inability to use mathematical concepts and principles is the main cause of students' verbal problems. In this research. Students face a number of challenges, including their inability to understand the context of the questions given. They also face problems in understanding geometry material, applying formulas, and understanding theorems. Most importantly, they continue to have difficulty understanding the problems in the questions (Sholihah & Afriansyah, 2017).

As stated by Lesmana (2024), when students are faced with problems that are different from those they face in everyday life, it is very likely that students will face unexpected challenges and be unable to solve these problems. This is what happens to students when answering the questions given.
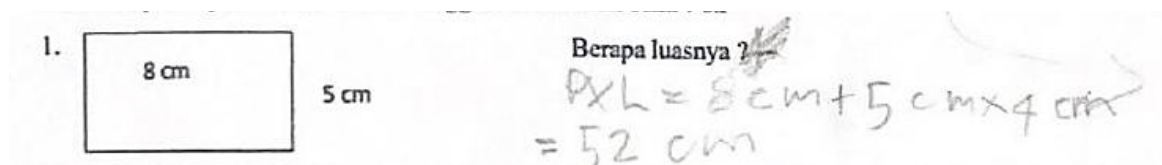
Figure 4. Students' Difficulty in Interpreting the Properties and Area of Rectangles

Based on the results of interviews conducted with SPS students, it was found that these students had difficulty understanding and determining the nature and characteristics of rectangular flat shapes, which resulted in students being unable to answer questions related to the area of rectangles.

Researcher   : Can you explain how to calculate the area of the rectangle?

Student   : Add up the numbers first then multiply by four sides miss! (Explain while pointing to the rectangular image in the question)

Researcher   : What is called length and width in the picture in which question?

Student   : Ouch, I'm confused ma'am... because I've forgotten and only memorized the formula.

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In this question, it can be seen that SPS has written the formula for the area of a rectangle correctly, the students wrote the area of a square = L x L. However, RAN had difficulty determining the length and width of the rectangle and wrote the result 8 cm + 5 cm x 4 cm = 52 cm. Students only get to the procedure of writing the formula for the area of a rectangle and are unable to determine the result and have difficulty concluding the solution obtained so the answer is wrong. From the results of interviews with SPS students, it appears that students do not understand the properties of rectangles and are not able to differentiate between the length and width of a rectangle. Therefore, students carry out calculations by adding 8 cm + 4 cm and multiplying by the number 4 (the number of sides in a rectangle). Students will study it again at home. Apart from that, the factor that causes students to have difficulty learning is not understanding the teacher's explanation when explaining the area of a rectangle.

Based on the results of tests and interviews conducted by students, it can be seen the difficulties experienced by students in working on the square and rectangle area questions that have been given. According to Lerner (in Hidajat, et al, 2018: 7) students experience learning difficulties due to a lack of understanding of (1) symbols, (2) place value, (3) calculations, (4) use of incorrect processes, and (5) incorrect writing. Can not be read. According to Sabrina in (Rahayu, 2021), the next difficulty is students' lack of accuracy in calculating multiplication using the area formula for squares and rectangles. At this point, it was found that several students were correct in applying the formula. However, this is due to a lack of understanding of the area of squares and rectangles and a lack of accuracy in calculating multiplication, especially in operations because students do not understand multiplication. Mathematics is not rote memorization, the concept lies in multiplication, namely repeated addition, considering that students are taught in fifth grade, so the task of a teacher is to require students to understand mathematical material. Through the results of the analysis, it can be seen that the factors causing students' difficulties in working on problems with flat shapes are (1) internal factors, namely (a) students do not understand the concept, have difficulty applying the principles and properties of squares and rectangles, and have difficulty in solving verbal problems of area of a square and rectangle. rectangle (b) students do not memorize multiplication and (c) students are not careful in working on the questions. (2) external factors in the teacher's explanation that students do not understand. According to Sabrina (2021), Decreased mathematics learning outcomes are caused by the following factors, namely those originating from within the student & factors from outside the student. The factors that cause students' difficulties in learning mathematics come from the students themselves, namely the physiological aspects (which are physical) and the psychological aspects (which are spiritual). Next, the second is external factors that come

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from outside the student, consisting of two types, namely the condition of the social environment & non-social environment.

Students who experience various difficulties must be overcome immediately with the help of teachers, parents and the students themselves. Because the problems faced by students will continue to increase, the remaining difficulties will make the mathematics material increasingly difficult for them to understand. Based on the results of observations and interviews with teachers and students, efforts have been made to overcome the problems faced by students but have not been optimal. Teachers are aware that some students face difficulties in learning mathematics. This is proven by student learning outcomes that have not reached the minimum completeness criteria. Teachers make various efforts, including encouraging and motivating students and helping students who have difficulty understanding the material being taught. Students make their own efforts by taking part in tutoring and additional study. They also study in groups at home. It is felt that the efforts made by teachers and students have not been able to reduce or minimize the mathematics learning difficulties experienced by students because student learning outcomes have not reached the minimum completeness criteria. Apart from that, teachers still have to do more, for example by frequently repeating material, using concrete objects and learning media to support students' understanding of the material, using learning models that are appropriate to the material being taught, and occasionally giving awards or appreciation to students.

CONCLUSION

Based on the results of the data analysis that has been explained, it can be concluded that students have difficulty learning flat shapes, namely the area of squares and rectangles. This is evident from the 3 students who answered the question about the area of a square, none of the students wrote the unit of length in cm when answering the question about the area of a square, only 1 student only answered the question by writing the formula for the area of a square and then calculating the results, this shows that The percentage of students who answered the question by writing down the square area formula first before calculating the result was 33.3% and the percentage of students who did not write the square area formula first before calculating the result was 66.6%, so there was still 1 student who answered the multiplication result incorrectly. square area. Meanwhile, for the rectangular area question, only 1 student answered all the questions correctly, and 2 students answered incorrectly, meaning that the percentage of students who answered the rectangular area question correctly was only 33.3% and the percentage of students who answered the question incorrectly was 66.6. %, then there was still 1 student who answered incorrectly the product of the area of a rectangle. Factors that cause students' difficulties in working on flat shape

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problems are (1) internal factors, namely (a) students do not understand the concept, have difficulty applying the principles and properties. squares and rectangles, and experienced difficulty in solving verbal problems regarding the area of squares and rectangles. rectangle (b) students do not memorize multiplication and (c) students are less careful in working on questions. (2) factors outside the teacher's explanation that students do not understand.

Efforts that can be made by teachers are by trying to encourage and help students who still have difficulty understanding the material, by using concrete learning objects and media, using learning models that are appropriate to the material being taught, and occasionally giving awards or appreciation to students. Apart from that, students can try taking additional lessons outside of school and study in groups with friends or study with the guidance of older siblings or parents at home. The researcher hopes that there will be a continuation of this research, for example by applying Van Hiele's theory to the analysis of difficulties in learning square and rectangular area geometry because Van Hiele's theory discusses geometric material in depth.

REFERENCES

Abrar, A. I. P. (2018). Kesulitan Siswa SMP Belajar Konsep dan Prinsip dalam Matematika. *Al-Khwarizmi: Jurnal Pendidikan Matematika dan Ilmu Pengetahuan Alam,* 2(1), 59-68. https://doi.org/10.24256/jpmipa.v2i1/102

Aledya, V. (2019). "Kemampuan Pemahaman Konsep Matematika Pada Siswa". *Pendidikan Matematika Universitas Negeri Medan*. https://www.researchgate.net/profile/ViviAledya/publication/333293321_KEMAMPUAN_PEMAHAMAN_KONSEP_MATEMATIKA_PADA_SISWA/links/5ce5705a458515712ebb6708/KEMAMPUANPEMAHAMAN-KONSEP-MATEMATIKA-PADA-SISWA.pdf

Ali, et al. (2016). *Kumpulan Metode Pembelajaran Kreatif dan Inovatif*. Bandung: Satu Nusa.

Amin AY and Murtiyasa B. (2021). Analisis Kesulitan Belajar Matematika Siswa pada Proses Pembelajaran Daring Menggunakan Metode Pembelajaran Berbasis Masalah. *Kontinu Jurnal Didaktik Matematika, 5(1), 49.* DOI:10.30659/kontinu.5.1.49-65

Angriani AD, et al. (2024). Analisis Kesulitan Siswa dalam Menyelesaikan Soal Literasi Matematika PISA berdasarkan Self-efficacy. *Prosiding Diskusi Panel Nasional Pendidikan Matematika Universitas Indraprasta PGRI Jakarta.*

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Arikunto, S. (2016). *Prosedur Penelitian SuatuPendekatan Praktik.* Jakarta: Rineka Cipta.

Azhar A, et al. (2023). Permasalahan Siswa dalam Memecahkan Masalah Matematika dalam Mengerjakan Soal PISA. *Gunung Djati Conference Series, Volume 32 (2023) Conferences Series Learning Class.* Website: https://conferences.uinsgd.ac.id/

Cherif, AH, Gialamas, S., & Stamati, A. (2017). Mengembangkan Pengetahuan dan Keterampilan Matematika melalui Pendekatan Kesadaran Belajar Mengajar. *Jurnal Pendidikan dan Praktek*, 8(13), 108–132.www.iiste.org.

Creswell, JW. (2015). *Penelitian Kualitatif & Desain Riset*. Yogyakarta: Pustaka Pelajar.

Eka Lestari, Karunia & Mokhammad Ridwan Yudhanegara. (2015). *Penelitian Pendidikan Matematika*. Bandung : PT Refika Aditama.

Fahrurrozi. (2017). *Metode Pembelajaran Matematika*. Lombok Timur: Univeristas Hamzanwadi Press.

Fatahillah, A., N.T, Y.F.W., & Susanto. (2017). Analisis Kesalahan Siswa dalam Menyelesaikan Soal Cerita Matematika berdasarkan Tahapan Newman Beserta Bentuk Scaffolding yang diberikan. *Kadikma*, 8(1), 40–51.

Isrok'atun. (2018). *Model-model Pembelajaran Matematika*. Jakarta: Bumi Aksara.

Isroqmi A. (2020). Software Aplikasi Pembuat Animasi Sebagai Alternatif Pengganti Alat Peraga Untuk Menanamkan Konsep Dasar Matematika. *INDIKTIKA (Jurnal Inovasi Pendidikan Matematika)*,Volume 2 No. 2 Hal. 146-158.

Jupri, A. (2017). Dari geometri hingga aljabar dan sebaliknya sebaliknya: Prinsip pendidikan matematika realistis untuk menganalisis tugas geometri. *AIP Prosiding Konferensi*, 1830. https://doi.org/10.1063/1.4980938

Kusnadi, D., & Wilda, I, N. (2020). "Penerapan Teori Van Hiele Sebagai Dasar Pengenalan Geometri Di Sekolah Dasar". *Jurnal Matematics Pedagogic*, 5 (1) 17.http://www.jurnal.una.ac.id/index.php/jmp/article/view/1383

Lesmana AA. (2024). Analisis Penggunaan Model Pembelajaran Problem Based Learning Dalam Mata Pelajaran Pelaksanaan Dan Pengawasan Konstruksi Di Sekolah Menengah Kejuruan. *Educatioanl Journal: General and Specific Research*, Vol. 4 No. 2, page 246-255.

Mufarizuddin. (2018). Analisis membantu Pembelajaran Matematika Siswa Kelas V Sd Negeri 012 Bangkinang Kota. *Jurnal Pendidikan*, 1(1), 40–47.

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Musto'inah, Aries Tika Damayani, Ryky Mandar Sary. (2023). "Analisis Kesulitan Siswa Dalam Pemahaman konsep Matematika Di Tinjau Dari Perbedaan Gender Di Sekolah Dasar". *Prosiding Sendika*, 4 (1) 319.https://conference.upgris.ac.id/index.php/sendika/article/view/4363

Nur, A.S., & Palobo, M. (2018). Profil Kemampuan Pemecahan Masalah Matematika Siswa Ditinjau dari Perbedaan Gaya Kognitif dan Gender. *Kreano*, 9(2), 139–148. https://doi.org/http://dx.doi.org/10.15294/kreano.v9i2.15067

Nurhamsiah, N., Halini, H., & Ahmad, D. (2016). Analisis membantu Siswa dalam Mempelajari Bentuk Aljaar Berkaitan dengan Konsep dan Prinsip di SMP. *Jurnal Pendidikan Dan Pembelajaran Untan*, 5(2).

Permendikbud Nomor 37 Tahun 2018 tentang Perubahan atas Permendikbud Nomor 24 Tahun 2016 tentang Kompetensi Inti dan Kompetensi Dasar Pelajaran Pada Kurikulum 2013 pada Pendidikan Dasar dan Pendidikan Menengah.

Purbaningrum, KA (2019). Analisis membantu Mahasiswa dalam Memahami Materi Kontinuitas Fungsi Mata Kuliah Kalkulus Diferensial. Didaktik Matematika: *Jurnal Pendidikan Matematika*, 5(2), 199–209. https://doi.org/10.1017/CBO9781107415324.004

Sabrina, Simbolon, & Sapri. (2022). "Analisis Kesulitan Belajar Siswa Kelas IV Materi Bangun Datar Sekolah Dasar". *Jurnal Ilmu Pendidikan*, 4 (2) 2512. https://www.edukatif.org/index.php/edukatif/article/view/2081

Sari, R. D., Lukman, N. E., & Muhammad, R. M. W. (2021). "Analisis Kemampuan Siswa SD Dalam Menyelesaikan Soal Geometri Asesmen Kompetensi Minimum". Jurnal Pendidikan Guru, 2 (4) 187.https://ejournal.stitpn.ac.id/index.php/fondatia/article/view/1387

Sholihah, S.Z., & Afriansyah., E.A. (2017). Analisis membantu Siswa dalam Proses Pemecahan Masalah Geometri Berdasarkan Tahapan Berfikir Van Hiele. *Jurnal "Mosharaf"*, 6(2), 287–298.

Yusmin, E. (2016). mengecualikan Belajar Siswa pada pelajaran Matematika (Rangkuman Dengan Pendekatan Meta-Etnografi). *Jurnal Visi Ilmu Pendidikan*, 9(1), 2119–2136.

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Elementary Education Study Program, Faculty of Educational Science, Universitas Pendidikan Indonesia

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