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Difficulties in mathematical language and representation among elementary school students when solving word problems

Agusfianuddin [1, *], Tatang Herman [2], Turmudi [2]

[1] Elementary Education Study Program, School of Postgraduate, Indonesia University of Education, West Java, Indonesia.
[2] Mathematics Education Department, Faculty of Mathematics and Science Education, Indonesia University of Education, West Java, Indonesia.

*Correspondence: agusfianuddin@upi.edu

Abstract

Difficulties in mathematical language and representation were the dominant difficulties in solving word problems for students in elementary school. The research aims to analyze students' mathematical language and representation difficulties when solving word problems. The research subjects were 114 fifth-grade elementary school students selected using a purposive sampling technique with different mathematical abilities. The research was conducted at an elementary school in Sumbawa District, West Nusa Tenggara, Indonesia. Data collection techniques included tests, questionnaires, and interviews. The research results show that students' difficulties in mathematical language were dominant indicators of sentences. Students had difficulties in mathematical representation indicators, which were dominant in symbols. The factors that cause difficulty for high, middle, and lower ability students are unaccustomed to solving word problems and using problem-solving procedures, difficulty with concepts, difficulty with reasoning, difficulty understanding what is known and what is being asked, not being careful in reading the problem, and difficulty with long sentences. Student word problem-solving is in the low category.

Keywords: elementary school; mathematical language; mathematical representation; word problems

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Introduction

Mathematical word problems are textual descriptions of mathematical problem situations that need to be solved using mathematical concepts and procedures (Martin & Mullis, 2013; Phonapichat, 2014). The mathematical procedures referred to are related to problem-solving strategies. The author uses problem-solving strategies based on Polya's steps and Newman's error analysis. Polya's (1981) problem-solving strategy includes 1) understanding the problem, 2) devising a plan, 3) carrying out the plan, and 4) looking back at the process and results. Meanwhile, Newman's (1977) error analysis in word problems includes: 1) reading the problem, 2) understanding the problem, 3) transforming the problem, 4) processing skills, and 5) writing the answer. The above strategies involve integrating Polya's strategy and Newman's error analysis into a new strategy for solving word problems. The steps of the Polya-Newman modification are: 1) reading and understanding the problem; 2) planning and transforming the problem; 3) executing process skills; and 4) writing the answer (result).

An initial investigation conducted by the author on teachers and students through questionnaires revealed that the dominant difficulties students face in solving word problems are related to language and mathematical representation. The complexity of these difficulties, as shown by Agusfianuddin et al. (2020), which include (1) difficulty in translating mathematical language into correct mathematical symbols, (2) conceptual difficulties, and (3) representation difficulties, underscores the need for further research. These three challenges formed the basis for the author's continuous research focusing on analyzing students' difficulties in mathematical language and representation in solving word problems. Fatmanissa et al. (2017) stated that language challenges in word problems remain a pressing issue that needs to be investigated. Utilizing problem-solving strategies in teaching word problems to assess students' abilities has proven insufficient.

Word problems possess two characteristics: mathematics and language. In discussing mathematical language difficulties, Achmad and Abdullah (2013) and Chaer (2014), knowledge of hierarchical language subsystems taught at higher grades is required, namely morphology and syntax abbreviated as morphosyntax. According to Verhaar (2001), Achmad & Abdullah (2013), and Chaer (2014), morphosyntax includes 1) words as units of language with a single meaning; 2) phrases as groups of words that function as parts of longer utterances; 3) sentences as orderly arrangements of words containing complete thoughts. Clauses and sentences have roughly the same grammatical unit/arrangement, so clauses in this writing are included in sentences; and 4) discourse as a complete unit of language, making it the highest or largest grammatical unit in the hierarchy.

These four language hierarchies have both lexical and grammatical meanings. Chaer (2014) defines lexical meaning as the actual meaning (based on a dictionary), while grammatical meaning is a word that has combined with other elements; for example: "ber" and "sepeda" (ride) mean "bersepeda" (riding a bicycle), and so on. In their research, Gafoor et al. (2015) discuss more specifically the language structure found in mathematical language. According to them, mathematics has its language consisting of several components: 1) content, 2) structure, and 3) function. Where content consists of lexical and grammatical;

structure itself consists of morphology, syntax, and phonology; and function consists of semantics and pragmatics.

Furthermore, students' representation difficulties can be seen from Bruner's representation model, divided into three types: enactive representation, sensorimotor representation formed through concrete actions or manipulative movements, and iconic representation, which relates to images or perceptions with visual representation. Iconic representation translates from concrete and physical to the mental imaginative realm. Iconic representation occurs when a child "depicts" operations or manipulations as a way not only to remember activities but also to redraw them if needed mentally, and symbolic representation relates to mathematical language and symbols. Symbolic representation encodes knowledge using symbol systems (such as language and mathematical numbers) (Schunk, 2010).

Hwang et al. (2007) identified three levels of mathematical problem-solving representation, namely (1) language representation ability, translating observed objects and their relationships with mathematical problems into verbal or oral representations; (2) graphic or image representation ability, the skill of translating mathematical problems into pictures or graphics; and (3) arithmetic symbol representation ability, the skill of translating problems into arithmetic formula representations. Among these three representations, enactive/verbal representation, according to Bruner, is included in language representation. Based on the background, theories, and relevant research results, the author can describe two main aspects of analyzing mathematical word problems: language and mathematical representation. Students will be able to represent the meaning of word problems if they can understand the language aspect of the word problems. In other words, mathematical representation is closely related to the mathematical language in word problems.

First, the aspect of mathematical language consists of two elements: morphology and syntax (morphosyntax) in mathematics. The mathematical morphosyntax referred to in mathematical word problems includes: (1) mathematical words, which are units of mathematical language that have a single meaning, for example: {("add" or "+"), ("subtract" or " - "), ("half" or "$\frac{1}{2}$"), ...etc.}; (2) mathematical phrases, which are groups of mathematical words that are functional parts of the story, for example: {("greater than" or ">"), ("greater than or equal to" or "≥"), ("twice" or "2x"), ...etc.}; (3) mathematical sentences, which are complete arrangements of functional mathematical words, for example: {("greater than half" or "$>\frac{1}{2}$"), ("Jono has 2 marbles and Toni has marbles that are 6 times as many as Jono's" or "2x6"), ("Three years ago, Faris was 12 years old" or "3 + 12"), ...etc.} and; (4)Mathematical discourse, which is a unit of mathematical language in a complete word problem, for example: {("Jono has 2 marbles and Toni has 6 times as many marbles as Jono. Toni gives 6 marbles to Budi. How many marbles does Toni have now?" or "6x2 = 12 - 6 = 6"), ("150 students were invited to the principal's birthday celebration held at a restaurant. If the students are asked to sit at tables with 6 chairs each, how many tables are needed?" or "150 ÷ 6 = 25"), ("An elementary school has 1,000 students. Estimate how many teachers are at the school? Explain why your estimate is like that!" (subjective question)), ...etc.}.

Second, the aspect of mathematical representation consists of two elements: visual and symbolic. Visual representation refers to mathematical expressions in the form of pictures, tables, graphs, diagrams, etc. For example: {(pictures, tables, graphs, ... etc.)}. In addition, symbolic representation refers to mathematical expressions in the form of language and symbols, for example: {(1, 2, 3, ...), (+, -, ÷, ×), (1/2, >, <, ≥, ≤), (2×6, >1/2, 2+3=5, 10÷5=2, ... etc.)}.

Methods

The research aims to analyze students' difficulties in language and mathematical representation in solving word problems in elementary school. Where, the indicators of difficulty in mathematical language are shown in Table 1.

Table 1. Indicators of difficulties in mathematical language

Mathematical Language	Indicator
Word	Students' difficulty in understanding and converting words into other mathematical symbols, for example: in word problems, the word "bertambah" or "naik" for "+" ; the word "berkurang" or "turun" for "-" ; and the word "setengah" for "$\frac{1}{2}$" and so on;
Phrase	Students' difficulty in understanding and transforming phrases into other mathematical symbols, for example: the phrase "6 kali" for "6 x", the phrase "kurang dari" for "<", and the phrase "lebih dari atau sama dengan" for "≥", and so on.
Sentence	Students struggle with understanding and translating sentences into mathematical symbols, such as: the sentence "A has marbles 6 times as many as B" translates into mathematical terms as "A has 6 × B marbles," and the phrase "more than half" translates into "> $\frac{1}{2}$," and so on.
Discourse	Students struggle to understand and transform discourse (the entire text) into other mathematical symbols, for example: students have difficulty understanding the relationship between each mathematical element in word problems. For instance: "A has marbles 6 times as many as B's marbles". "B has 10 marbles." The connection between sentences, i.e., "6x10", and so on.

Next, the indicators of difficulty in mathematical representation are presented as shown in Table 2.

Table 2. Indicators of difficulties in mathematical representation

Mathematical Representation	Indicator
Iconic	Students' difficulty in understanding and transforming (pictures/tables/graphs/diagrams) in word problems into other mathematical expressions;
Symbolic	Students' difficulty in understanding and converting language and mathematical symbols in word problems into other mathematical expressions.

The research method used was a qualitative descriptive approach. According to Moleong (2018), qualitative research is an approach that uses naturalistic methods to seek and discover the understanding of phenomena experienced by the research subjects. The sampling technique used in this research is purposive sampling, a sampling technique with specific criteria (Creswell, 2015). The research subjects in this study are 114 fifth-grade elementary school students with high, medium, and low abilities. The research occurs at SD Negeri 1 and SD Negeri 7 in Alas District, Sumbawa Regency, West Nusa Tenggara, Indonesia. Data collection techniques include tests, questionnaires, and interviews. Data analysis is conducted in three stages: data reduction, presentation, and conclusion drawing (Miles & Huberman, cited in Sugiyono, 2018). Furthermore, the following scale is used to measure the categories of language and mathematical representation abilities of each student in solving word problems.

Table 3. Measurement of mathematical language ability (Suryanto, 2021)

Percentage (%)	Category
>75 % - 100 %	High
>50 % - 75 %	Sufficient
>25 % - 50%	Low
0 % - 25 %	Very Low

Meanwhile, the scoring rubric for assessing students' language and mathematical representation abilities in solving word problems is as follows in Table 4.

Tabel 4. The scoring rubric for solving mathematical word problems (Modification strategy of Polya (1981) and Newman (1977))

Skor	Scoring Rubric for Mathematical Word Problem Solving			
	Reading and Understanding the Problem	Planning Problem Transformation	Implementing Process Skills	Writing Answers (Results)
0	Unable to Identify Information Present in the Problem	Unable to Convert (Words, Phrases, Sentences, Discourse, Visuals, and Symbols) in the Problem into other Mathematical Forms	Not using one of the problem-solving strategies.	Including errors in each step of the solution.
1	Able to Identify Information Present in the Problem	Can transform some of the (words, phrases, sentences, discourse, visuals, and symbols) in the problem into another mathematical form	Using the problem-solving strategy but having a wrong step.	There are errors in several steps of the solution.
2	Understanding the Meaning of Each Information in the Problem	Can transform (words, phrases, sentences, discourse, visuals, and symbols) in the problem into another mathematical form	Using the problem-solving strategy, but failing to solve it until the correct answer is found.	There are no errors in each solution.
3	-	-	Using the problem-solving strategy with the correct steps.	-

Results

The test consists of 18 questions given to students, comprising 9 story problems with indicators of difficulty in mathematical language and nine-story problems with indicators of difficulty in mathematical representation. The test results on the difficulty indicator in mathematical language are, first, word difficulty (questions 1 and 8). The percentage of students who could solve question 1 was 74.6%, and question 8 was 23.7%—second phrase difficulty (questions 2 and 18). The percentage of students who could solve question 2 was 60.5%, and question 18 was 15.8%—third, sentence difficulty (questions 5 and 10). The percentage of students who could solve question number 5 was 14.9%, and question number 10 was 16.7%—fourth, discourse difficulty (questions 3, 7, and 17). The percentage of students who could solve question number 3 was 62.3%; question number 7 was 30.7%; and question number 17 was 39.4%.

Meanwhile, the results of the test on the difficulty indicator in mathematical representation are as follows: first, visual difficulty (questions 4, 9, 12, 15, and 16, which involved interpreting graphs and diagrams). The percentage of students who could solve question number 4 was 7.1%; question number 9 was 3.5%; question number 12 was 11.4%; question number 15 was 27.2%; and question number 16 was 27.2%. Second, symbol difficulty (6, 11, 13, and 14, which involved understanding mathematical symbols and notations). The percentage of students who could solve question number 6 was 12.3%; question number 11 was 12.3%; question number 13 was 9.6%; and question number 14 was 16.7%. The average percentage of test results was 25.9% able to answer story problems correctly. Thus, the category of student ability in mathematical language and representation is classified as 'low'.

Furthermore, the authors analyzed the test results from students with high ability (R1, R2, R3, R4,..etc.), medium ability (S1, S2, S3, S4,...etc), and low ability (T1, T2, T3, T4,...etc.). The description of test results for each student in solving story problems is as follows.

Analysis of students' difficulties in mathematical language and representation in solving story problems by high-ability students

Students' difficulties in mathematical language can be seen in their problem-solving results in mathematical language indicators, as follows.

> "225 parents of students were invited to a meeting at the school. According to the school principal, it is estimated that more than half of the invited parents will attend the meeting. How many parents are expected to attend the meeting according to the school principal?"

The problem presented above is a mathematical language indicator problem involving the mathematical phrase "more than half." Of the students, 15.8% gave correct answers to the problem, meaning 84.2% faced difficulties in problem-solving, including one of them, R1. Here are the problem-solving results for R1, who struggled with the phrase "more than half."

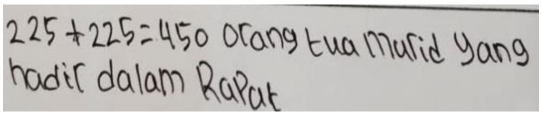


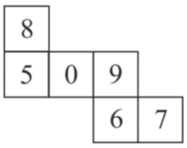
Figure 1. Problem-solving results of R1

In figure 1 above, it is evident that the problem-solving result from R1 states, "225 + 225 = 450 parents of students attending the meeting." Therefore, the author conducted confirmation through an interview, and the interview result is as follows.

Interviewer	:	Are you having difficulty with question number 4?
R1	:	Not
Interviewer	:	What is known in the problem?
R1	:	225 parents were invited to the meeting by the school principal.
Interviewer	:	What else is known and what is being asked?
R1	:	More than half of the parents attended. How many parents will attend?
Interviewer	:	Why is your answer 450 parents will attend?
R1	:	Because more than half, so 225 + 225 = 450.
Interviewer	:	Why is your answer like that (225+225)?
R1	:	Because it's more than half.
Interviewer	:	Please read the question carefully.

The analysis of R1's problem-solving results shows difficulties in mathematical language, particularly in the phrase "more than half," which needs to be represented in mathematical symbols. Students are not careful when reading the problem, leading to errors in representing the correct mathematical symbols. This difficulty is more prevalent among students with medium and low abilities. Furthermore, in a problem involving mathematical representation indicators, difficulties in visual representation arise, as follows:

"In the cube nets diagram below, there are 3 pairs of numbers that are opposite each other. Which number is opposite to the number 0?"



In the mathematical representation indicator word problem with visual difficulty mentioned above, only 3.9% of students can solve the problem correctly, making it one of the most challenging problems for students. Here are the problem-solving results for R1.

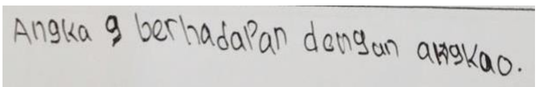


Figure 2. Problem-solving results of R1

Based on the problem-solving result from R1 in Figure 2 above, which states "the number 9 is opposite the number 0," the authors conducted confirmation through an interview, as follows.

Interviewer	:	Are you having difficulty with question?
R1	:	Yes, Sir
Interviewer	:	What is known in the problem?
R1	:	There are 3 pairs of numbers that are facing each other
Interviewer	:	Then, what is being asked?
R1	:	The numbers facing the number 0?
Interviewer	:	Why is your answer 9?
R1	:	Because, 0 is facing 9, 5 is facing 8, 6 is facing 7.

The students' difficulty in the mathematical representation indicator, particularly the visual representation (cube nets diagram), lies in the reasoning difficulty in assembling the cube nets into a complete cube. This is because students are not accustomed to assembling cube nets. This difficulty is also predominant among students with medium and low abilities.

Analysis of students' difficulties in mathematical language and representation in solving story problems by medium-ability students

Students' difficulties in mathematical language can be seen in their problem-solving results in mathematical language indicator word problems, such as the following:

> "Suppose I am on the 3rd floor of a 25-story office building. From the 3rd floor, I go up 7 floors, then down 5 floors, and then up again 11 floors. What floor am I currently on?"

The problem above is a mathematical language indicator word problem with difficulty in mathematical words, specifically the words "up" and "down." Here are the problem-solving results for S1.

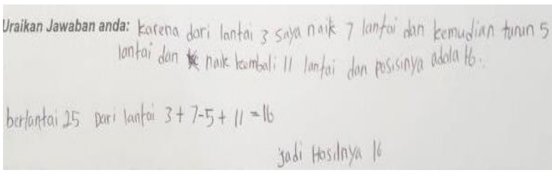
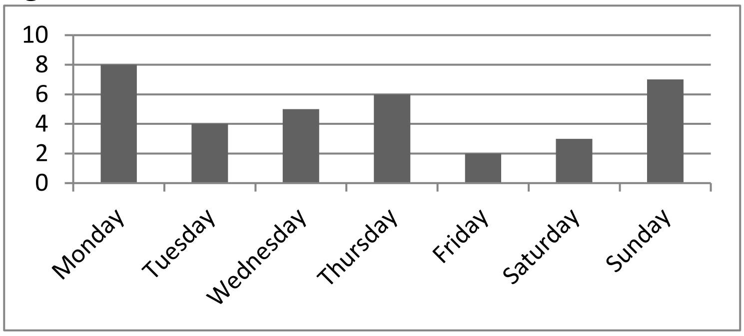


Figure 3. Problem-solving results S1

In Figure 3 above, the problem-solving result from S1 is "since I went up 7 floors from the 3rd floor, then down 5 floors, and then up again 11 floors, the position is 16. Considering the building has 25 floors, from floor 3 + 7 - 5 + 11 = 16." This means that S1 did not encounter difficulty in the language indicator, as S1 was able to represent the words "down" and "up" into mathematical symbols. Furthermore, in a word problem with a mathematical representation indicator and difficulty in visual representation, as follows:

"The graph below shows the birth dates data of all fifth-grade students recorded by the homeroom teacher. From the graph, what is the total number of fifth-grade students?"



S1 experienced difficulty in the mathematical representation indicator word problem. The problem-solving result for S1 is as follows.

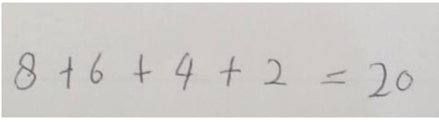


Figure 4. Problem-solving results S1

In Figure 4 above, the problem-solving result from S1 is '8 + 6 + 4 + 2 = 20.' This result prompted the author to confirm with S1 through an interview. The interview result is as follows.

Interviewer	:	Are you having difficulty with question?
S1	:	Not
Interviewer	:	What is known and what is asked in that question?
S1	:	(The student rereads the question and pays attention to the picture in the problem)
Interviewer	:	Why is your answer 20?
S1	:	8 + 6 + 4 + 2 =20
Interviewer	:	Why are the graphs for Wednesday, Saturday, and Sunday not included in the total?
S1	:	There were no students born on that day, sir.

The students, notably S1, needed help with visual representation through a diagram or graph. S1's difficulty in representation lies in needing help determining the numbers (number of students born) on the diagram or graph where the numbers are not explicitly stated. It is because students are not accustomed to reading diagrams or graphs. This difficulty also occurred among some high-ability students and was more dominant among low-ability students with the same factor.

Analysis of student difficulties in language and mathematical representation in solving story problems by lower-ability students

The mathematical language indicator word problem with difficulty in mathematical sentences and discourse is as follows:

"Three cake pans, each cut into 4 equal parts. Each piece of cake is garnished with the same number of cherries. Agus eats 1 piece of cake. Now there are 22 cherries left. How many cherries are in 1 cake pan?"

In the problem above, one of the students who experienced difficulty is T4. Here are the problem-solving results for T4.

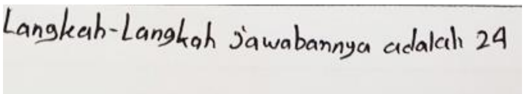


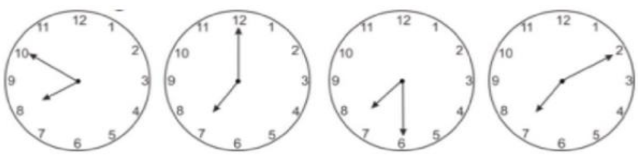
Figure 5. Problem-solving results T4

Based on Figure 5 above, the problem-solving result from T4 is stated as "the answer steps are 24." This result prompted the author to confirm with T4 through an interview. The interview result is as follows.

Interviewer	:	Are you having difficulty with question?
T4	:	Yes, Sir
Interviewer	:	What is known in that question?
T4	:	(The students re-read the problem)
Interviewer	:	What is known and what is asked in that question?
T4	:	(The students reread the problem again)
Interviewer	:	Why is your answer 24 ?
T4	:	Because the total number of cherries is 24
Interviewer	:	The question is, from three cake pans, how many cherries are in one pan?
T4	:	Ah, the problem is difficult because it's lengthy.

The analysis of T4 problem-solving results shows difficulty in understanding what is known and what is being asked in the problem. The factor behind this is the problem's long sentence structure. T4 also faced difficulty in a mathematical representation indicator problem, specifically in visual and symbol representation. The problem is as follows:

"Observe the four wall clocks. Only one wall clock shows the correct time. One clock shows a time that is 20 minutes earlier. Another clock shows a time that is 20 minutes later. What time is it now?"



The problem-solving result of T4 in the story above experienced difficulty, as seen in the following.

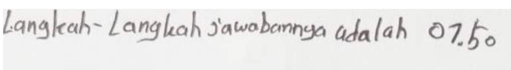


Figure 6. Problem-solving results T4

Based on Figure 6 above, the problem-solving result from T4 is "the answer steps are 07.50." This result prompted the author to confirm with T4 through an interview. The interview result is as follows.

Interviewer	:	Are you having difficulty with question?
T4	:	Yes
Interviewer	:	What is known in that question?
T4	:	(The students re-read the problem)
Interviewer	:	What is known and what is asked in that question?
T4	:	One of the clocks shows a time 20 minutes ahead and 20 minutes behind
Interviewer	:	Why is your answer 07.50 ?
T4	:	That's the correct one
Interviewer	:	Alright, which clock shows a time 20 minutes ahead, and which clock shows 20 minutes behind?
T4	:	(The student is unable to indicate the time as asked)

In the indicator of mathematical representation difficulty, student T4 struggled with a visual representation of images and symbols because they could not determine which wall clock accurately showed a time 20 minutes earlier or 20 minutes later. The factor behind this is T4's difficulty with the concept of time units, such as hours, minutes, and seconds. This same difficulty was also observed among several high- and medium-ability students with the same factor.

Discussion

Based on the description of the test results illustrates that students have difficulties with mathematical language indicators, namely sentence difficulties. Research conducted by Gafoor et al. (2015) and Seifi et al. (2012) found that one of the language difficulties students face in solving mathematical word problems is not only identifying keywords (known and asked) but also analyzing sentences, exceptionally long sentences in word problems. Students' difficulties in the indicator of mathematical representation are symbol difficulties. It is in line with the research results of Aifama et al. (2022), which found that students' difficulties in representing solutions to word problems are higher in symbolic representation compared to visual representation.

Students need help solving word problems, mainly because they need to use the correct problem-solving procedures. According to Putri et al. (2023), students need help to solve word problems because of difficulties in interpreting and understanding the language and instructions of the problems and in determining the procedures or formulas to use. Similarly, Gunawan (2017) in his research found several aspects of student errors in solving word problems: first, understanding the problem by writing down what is known and asked (not writing at all, incomplete, precisely like the problem, and writing down what is known when it is asked and vice versa). They were second, creating a mathematical model (not creating a model, and the model is incorrect), third, performing calculations (not following procedures and incorrect calculations), and fourth, concluding (not appropriate to the context of the answer, not writing at all, and exactly like the question).

The difficulties students face in mathematical language and representation in solving word problems among high-ability students include difficulties with the phrase "more than half" to be represented in mathematical symbols. The factor is that students are not careful when reading the problem, resulting in translation errors. According to Fatmanissa et al. (2017), students need help to solve word problems because they cannot define vocabulary (words, phrases, sentences, and the overall text) in the word problems. Phonapichat et al. (2014), in their research, mentioned several difficulties in problem-solving, one of which is that students have difficulty understanding keywords that appear in the problems, leading to an inability to interpret mathematical sentences. It differs from Purpura et al. (2016) in their research, which stated that students pay more attention to mathematical symbols than the general language describing them in word problems. Students understand symbolic language better than general language when solving word problems.

The difficulties in mathematical representation in solving word problems include reasoning difficulties in assembling a cube net into a complete cube so that the opposing sides can be seen. The factor is that students are not used to assembling cube nets. According to Utari et al. (2019), students need help understanding, planning solutions, and executing solution plans due to incorrect reasoning. The difficulties students face in mathematical language and representation in solving word problems among mid-ability students include reading diagrams/graphs due to lack of familiarity or experience. According to Jonassen (2011), Hutagaol (2013), and Khaerunnisa et al. (2018), students who are less able or have difficulty with visual representation are so due to a lack of familiarity or learning experience using those representations.

The difficulties students face in mathematical language and representation in solving word problems among low-ability students include difficulties in mathematical language, such as understanding what is known and asked in the problem. The factor is the long sentences in the problem. It aligns with the research by Agusfianuddin et al. (2020), which found that students face language difficulties in solving word problems. For example, students have difficulty understanding the meaning of the problem (not writing what is known and asked), translating the problem into mathematical sentences (symbols), and answering long questions. Furthermore, students have difficulties with visual and symbolic representation on the indicator of mathematical representation difficulties because they cannot determine which wall clock accurately shows 20 minutes faster and 20 minutes slower. The factor is students' difficulties with the concept of time units. It is in line with the research by Syafitri (2017), which found that high- and mid-ability students face difficulties with visual and symbolic representation due to low conceptual understanding, and low-ability students face difficulties due to procedural fluency and weak memory.

Conclusion

The research findings indicate difficulty indicators in mathematical language, namely: (1) word difficulty, with an average student ability percentage of 49.2%; (2) phrase difficulty, with an average student ability percentage of 38.2%; (3) sentence difficulty, with an average student ability percentage of 15.8%; and (4) discourse difficulty, with an average student ability percentage of 44.1%. Furthermore, the indicators of difficulty in mathematical representation are (1) visual difficulty, with an average student ability percentage of 15.3%, and (2) symbol difficulty, with an average student ability percentage of 12.7%. Thus, the average percentage of student ability test results in both language and mathematical representation in solving word problems is 25.9%, categorized as "low." Students' difficulty in mathematical language is predominantly in sentence difficulty, while the dominant difficulty in mathematical representation is symbol difficulty. Factors contributing to students' difficulty across different ability levels include being unfamiliar with solving word problems, not using problem-solving procedures, concept difficulty, reasoning difficulty, difficulty understanding what is known and what is asked, lack of attention to detail in reading the problem, and difficulty with long sentences. Students' problem-solving in word problems falls into the "low" category. The research implications suggest that teachers should provide students with word problems in every mathematics lesson more frequently.

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Conflict Of Interest

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Author Contributions

Agusfianuddin: Conceptualization, writing -original draft, editing, visualization, review, editing, formal analysis, and methodology; **Tatang Herman:** Validation and monitoring; **Turmudi:** Validation and monitoring.

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