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FUTURE PRIMARY SCHOOL TEACHERS' OPINIONS REGARDING THE MATHEMATICAL WORD PROBLEMS

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Abstract: This study examines the attitudes and opinions of 161 students, future primary school teachers, in Romania towards mathematical word problems during the 2023-2024 academic year. The investigation aimed at identifying their views on the importance, utility, and challenges of word problems. The results indicate that most students recognize the educational benefits of word problems, particularly in enhancing logical thinking and applying math to real-life scenarios. Feelings towards word problems vary: many students find them interesting and feel more confident after solving difficult problems, while most are neutral, and some need extra training to boost confidence and reduce anxiety. The study shows that many future teachers handle word problems well, but some experience difficulties. While most students have skills for solving word problems, there is notable variation in proficiency and practices. Some students lack adequate training and struggle with self-organization and attention to detail. Students support the increased educational efforts made in university courses to teach them to apply various strategies for solving word problems and recognize their importance. Overall, students are confident in their ability to solve and teach mathematical word problems, which suggests a strong commitment to improving their future teaching skills.

Key words: Mathematical word problems, future teachers, primary education, Romania.

1. Introduction

Mathematics is considered one of the most important subjects that helps develop critical and analytical thinking in students (Monrat, Phanksunchai, & Chonchaiya, 2022). One of the most important mathematical activities to achieve this goal is the solving of mathematical word problems, as they are among the best challenges that help students apply mathematical concepts in real-life contexts. This, in turn, enhances their deep understanding of the subject and explains to them why they should study such subjects (NCTM, 2000). Teaching problem-solving skills is one of the most important goals of education (Zsoldos-Marchiș, 2016).

This study focuses on investigating the opinions of students, who are future primary teachers, towards word problems in mathematics. The main goal is to understand how important these problems are from their point of view, the challenges they face when solving them, and the benefits they see in teaching and learning them. The study also seeks to explore the educational methods that students believe are effective in teaching these problems and the extent to which they are prepared to teach them in the future.

Studies have shown that pre-service primary school teachers develop more positive attitudes towards mathematics during their studies, especially when the curriculum focuses on fostering critical thinking and mathematical reasoning skills (Zsoldos-Marchiș, 2015, Sosa-Gutierrez, 2024). These findings can guide education officials and curriculum designers in identifying the necessary resources and support to enhance the problem-solving abilities of future teachers in tackling word problems. This, in turn, will help improve their teaching and learning competencies and enable them to transfer these skills to their future students. We hope that the results of this study contribute to strengthening mathematics education, equipping students with the skills and capabilities needed to address the challenges of the modern era effectively.

Future teachers need to be trained how to use word problems in teaching their students. As a result, it is important to understand their attitudes and opinions towards word problems in mathematics. The

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importance of this study lies in exploring how these teachers perceive the role of mathematical word problems in teaching mathematics, as well as the challenges they face when solving them.

In the context of mathematics education, evaluating the effectiveness of mathematical word problems is essential to understanding how to improve mathematics teaching in general and word problem teaching in particular, and enhance learning. The study will be based on a survey including university students who are studying to become elementary school teachers. By analyzing the answers, the study aims to provide recommendations for improving mathematics education curricula and developing effective teaching strategies that help students overcome the challenges they face in solving word problems.

2. Theoretical framework

”Word problems” are defined as ”verbal descriptions of problem situations wherein one or more questions are raised, the answer to which can be obtained by the application of mathematical operations to numerical data available in the problem statement” (Brook, 2017, p. 22). As highlighted by Zsoldos-Marchiș (2014) and Pólya (1945) there are four fundamental stages in the problem-solving process: understanding the problem, devising a plan, executing the plan, and evaluating the solution. Magdaș (2022) insert a stage of analysis of the problem between the first two stages and the last stage is renamed as ”extensions”, in which the evaluation of the solution it is also included.

Curricula of the educational systems in Europe give an important emphasis on students' ability to solve real-life problems. The general reference to the use of mathematics in real life is included in the curricula of almost all analysed education systems: in 37 education systems out of 39 in grades 1–4 and 38 education systems out of 39 in grades 5–8. (European Commission / EACEA / Eurydice, 2022, p. 80). Mathematical word problems are the most suitable for approaching some real-life situations. This type of problems requires the skill of transforming the text into mathematical language which is concretized in mathematical equations or relations. This skill is not only necessary in school education but also in everyday life situations, such as calculating distances, budget management, shopping, etc., which require the ability to convert between language and numbers (Johnston, 2023). Verschaffel et al (2020) present a general overview of international research on the various perspectives on the type of word problems in mathematics. Several studies (Murnane et al, 2001; Ritchie & Bates, 2013; Wei et al, 2013) found that lower performance in word-problem solving may impact students’ later mathematics success in school, job opportunities, and salary later in life (Powell et al, 2019).

Despite the great importance of word problems, many students still face numerous difficulties and challenges when trying to solve them (Unson, 2021). As Shaaban & Almunir (2012, p.14) note students’ difficulties are the disorder that appears in the form of a deficiency in the child's ability to listen, think, speak, write, spell or perform various mathematical operations. These difficulties also include the ability to correctly understand the text of the problem, identify the important information needed to be solved, convert this information into symbols, and build appropriate mathematical equations. Studies indicate that these difficulties are often related to a lack of training in higher-order thinking strategies and analytical skills, necessary in solving mathematical word problems (Mulwa, 2015). Slezáková and Jirotková (2024) identify three categories of mistakes in solving a word problem: mistakes at the level of the mathematical model, mistakes due to the previous wrong results, and mistakes due to inattentiveness.

By solving word problems, objectives can be achieved to all cognitive taxonomy levels (remembering, understanding, applying, analyzing, evaluating, creating) (Magdaș, 2007), students' heuristic and creative thinking develops (Magdaș, 2008) and have an impact positive in increasing student motivation and changing attitudes towards mathematics in general (Sagyndyk & Saduakassova, 2023).

3. Research methodology

3.1. Research questions

In this study the research questions are:

1. What is the importance of mathematical word problems from the point of view of students (future teachers)?

2. What are the feelings/attitudes of students (future teachers) towards mathematical word problems?
3. What difficulties do students (future teachers) face in solving mathematical word problems?
4. What methods do students (future teachers) use to solve mathematical word problems?
5. How well prepared are future teachers to solve and teach mathematical word problems in the future?

3.2. Study approach

A quantitative approach was used in this study.

3.3. The instrument

A questionnaire was designed to suit the objectives of the study, consisting of 2 parts. The first part contains seven questions about the respondents' demographic information and one question asking them to rate how much they enjoyed math at school. The second part includes 6 sections using Likert's five-point scale. The first section (A) investigates the importance of solving mathematical word problems from the perspective of students (future teachers). The second section (B) investigates the respondents' feelings towards this type of problems. The third section (C) measures the respondents' difficulties in solving mathematical word problems. The fourth section (D) explores the methods used by respondents in solving mathematical word problems. The fifth section (E) measures how prepared future primary teachers feel to solve and teach mathematical word problems in the future.

The questionnaire was administered online using Google Forms and targeted university education students from Babeș-Bolyai University, Cluj-Napoca, who are expected to teach mathematics in the future. Respondents were encouraged to share the questionnaire with fellow students from other faculties or other universities in Romania.

3.3.1 Validity of the instrument

Before being applied, the questionnaire was analyzed by 3 doctoral supervisors with competences in teaching mathematics and exact sciences and by twelve PHD students. It was then modified according to their suggestions to arrive at the final version.

3.3.2 Instrument's reliability

The reliability of the questionnaire was assessed using JASP, an open-source statistics program, using Cronbach's alpha, a measure of internal consistency. The analysis yielded a Cronbach's alpha coefficient of 0.872, With a Cronbach's alpha above the commonly accepted threshold of 0.7, the questionnaire demonstrates good internal consistency, making it a reliable tool for assessing the intended variables (Cronbach, 1951).

3.4 Participants

The sample involved in the research consisted of 161 Romanian university future primary school teachers who are expected to teach mathematics in the future, comprising 156 women and 5 men. In terms of academic year, approximately 67% of the respondents were in their 3rd year of undergraduate studies, 8% in their 1st year of undergraduate studies, 6% in their 1st year of master's degree, about 6% in their 2nd year of master's degree, 6% in their 4th year of undergraduate studies, 4% in their 2nd year of undergraduate studies, and 3% in doctoral programs.

For the high school or college graduate profile, the distribution of students is approximately as follows: 24% socio-human, 19% pedagogy, 19% natural sciences, 16% philology, 9% mathematical informatics, 9% other, 2% theological, and 1% arts. Regarding ethnicity, 90% of the respondents are Romanian, and 10% are from other ethnicities. The respondents come from several counties, most of them from: Cluj, Maramureș, Alba, Sălaj, and Bistrița. The respondents' grades in math in the last year of high school in which they studied math and, in the baccalaureate, are shown in Table 1.

Table 1. *Students' grades in math in the last year of high school in which they studied math and, in the baccalaureate*

Grades in math	5-5.99	6-6.99	7-7.99	8-8.99	9-10	Didn't study math
% of responses in high school	1.9	13	19.3	26.1	24.2	15.5
% of responses in baccalaureate	4.3	6.2	16.1	15.5	14.9	42.9

4. Data analysis

The data was collected automatically and processed using JASP and Microsoft Excel.

4.1 Results and discussion

Firstly, students were asked to rate how much they liked mathematics during school on a scale from 1 to 5, where 1 means “not at all” and 5 means “very much” the results are shown in (Table 2).

Table 2. *Student Preferences Towards Mathematics in School*

The scale	1	2	3	4	5
% of respondents	10	20	38	23	10

The results indicate a varied level of interest in mathematics among students. A significant number of students selected a middle rating, suggesting a neutral or moderate liking towards the subject. Interestingly, the same percentage of students reported either extreme dislike or extreme enjoyment of mathematics.

Based on these results that show a variation in students' enjoyment of mathematics, teachers can adopt several strategies to increase students' interest in mathematics. These strategies include making math lessons more interactive and engaging through practical activities, providing diverse learning materials that meet the different needs of students, encouraging students and providing continuous feedback, highlighting the importance of mathematics in our lives, using technological tools and promoting self-directed learning in mathematics. Lastly, organizing activities and projects that help students explore mathematics outside the traditional classroom environment can also be beneficial.

The responses to the second part of the questionnaire were tabulated and compared. The findings from the analysis of the first section are shown in (Table 3).

Table 3. *Students’ opinions about the importance of mathematical word problems*

The statement code	**Strongly disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
Solving word problems represents a goal in itself in teaching mathematics	1%	9%	35%	35%	20%
It is important to have the ability to solve word problems	0%	5%	24%	34%	37%
Word problems highlight to students the real-life applications of mathematical concepts	0%	4%	32%	39%	25%
Mathematical word problems develop students’ logical thinking	0%	4%	24%	27%	45%
Solving mathematical word problems develops students’ ability to cope with real-life problems	6%	11%	32%	30%	22%
Solving word problems requires applying mathematical knowledge and skills in new situations	0%	8%	31%	29%	32%
Word problems help students develop the ability to self-regulate their thinking processes	1%	11%	31%	32%	25%
Word problems improve students' text comprehension skills	0%	3%	27%	29%	42%

Note: The percentages were rounded to the closest integer

The Chi-square test indicates a strong association between the variables regarding the degree of agreement ($p<0.001$). The observed frequencies deviate significantly from the expected frequencies, suggesting substantial relationships among the analyzed categories ($\chi 2=119.26$; $p\approx 3.12\times 10^{-13}$; $df=28$)

Students were asked about their opinions regarding the importance of solving word problems in mathematics. Based on Table 3, it is evident that the majority of students responded with agreement or strong agreement to all statements. This indicates that students generally value the significance of word problems and recognize their role in education. A particularly large proportion of students expressed strong support for the idea that word problems play a key role in developing logical thinking. This awareness highlights the importance of emphasizing logical reasoning in curricula by focusing educational efforts on developing programs that support this approach.

Additionally, a significant number of students highlighted the importance of having the ability to solve word problems and acknowledged that such problems enhance text comprehension skills. This outcome underscores the need to prioritize word-problem-solving as an integral part of mathematics education. On the other hand, the lowest levels of agreement were related to the ideas that solving mathematical word problems enhances real-life problem-solving skills and that word problems are an end in themselves in mathematics education. This suggests a gap in awareness regarding the connection between word problems and real-life situations. Therefore, curricula should clarify the practical applications of mathematical word problems and how they can contribute to solving real-world challenges.

It was also observed that a large proportion of students were neutral about the ideas that mastering word-problem-solving skills helps develop real-life problem-solving abilities and that the solving word problems is an end in itself in mathematics education.

This calls for educators to emphasize the broader value of word problems in fostering diverse skill sets and linking mathematical learning to everyday life. By doing so, students may become more aware of the practical importance of these skills.

Although a small percentage of students disagreed with the importance of word problems, the highest level of disagreement was related to the idea that solving word problems develops real-life problem-solving skills. This finding highlights the need to reevaluate how word problems are taught and to make clearer the connection between these problems and real-world applications. There is a pressing need to provide training and educational experiences that reinforce and demonstrate this connection effectively.

In the second section, students were asked to rate their feelings about the mathematical word problems. The findings are shown in Table 4.

Table 4. *Students' feelings towards mathematical word problems*.

The statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I find solving word problems more interesting than solving other types of problems	2%	19%	42%	25%	12%
I am afraid if I have to solve word problems on a math test	22%	22%	37%	11%	8%
I gain more confidence when I can solve a difficult word problem	3%	3%	26%	36%	32%
I like to solve word problems	7%	16%	41%	20%	15%
I feel good when I correctly solve a word problem in mathematics	2%	6%	31%	25%	37%
I feel anxious when I have to solve a word problem in mathematics	24%	32%	27%	10%	7%

Note: The percentages were rounded to the closest integer

The Chi-square test indicates a strong association between the variables regarding the degree of agreement ($p<0.001$). The observed frequencies deviate significantly from the expected frequencies, suggesting substantial relationships among the analyzed categories ($\chi 2=242.46$; $p32.47\times10^{-44}$; $df=20$).

The results highlight moderate interest and enthusiasm for solving mathematical word problems. This indicates the need to increase the frequency of word problem solving activities, increase their engagement in the activity, and encourage a sense of achievement.

In terms of confidence and motivation, most students report feeling confident and satisfied when successfully solving word problems, especially complex ones. It follows that capitalizing on this positive aspect can be key to building confidence in their mathematical abilities and overcoming anxiety or fear when facing this type of problems, especially in test situations. This psychological challenge requires targeted educational strategies to reduce anxiety and increase confidence.

Overall, the findings point to the need for a supportive learning environment that reduces anxiety and increases enthusiasm for word problems. This can be achieved by offering tasks suited to different ability levels, encouraging effort, and connecting these problems to real-life contexts to make them more engaging.

The third section asked students to rate their difficulties in solving mathematical word problems. The results of the analysis of the third question are shown in Table 5.

Table 5. *Students' difficulties in solving mathematical word problems.*

The statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I need to read math word problems several times to understand them	2%	11%	30%	30%	27%
I have difficulty understanding the text of a mathematical problem	14%	37%	31%	13%	5%
It is difficult to translate word problems into mathematical symbols	19%	32%	26%	17%	5%
I find it difficult to determine the data and requirements in mathematical word problems	34%	30%	27%	9%	1%
I have difficulty identifying keywords that help me solve mathematical word problems	25%	32%	27%	14%	2%
I find it difficult to determine which operations to use to solve mathematical word problems	27%	36%	32%	6%	1%
I find it difficult to determine the method that should be used to solve a word problem in mathematics	22%	29%	32%	15%	2%
I work harder on word problems in mathematics than in math exercises	8%	16%	40%	25%	11%

Note: The percentages were rounded to the closest integer

The Chi-square test indicates a strong association between the variables regarding the degree of agreement ($p<0.001$). The observed frequencies deviate significantly from the expected frequencies, suggesting substantial relationships among the analyzed categories ($\chi 2=175.38$; $p\approx 32.82\times 10^{-23}$; $df=28$).

The results in Table 5 reveal a number of challenges that students encounter when dealing with word problems, serving to identify aspects that require improvement in the educational process. The frequent need to reread problems to understand them seems to be common. This suggests the need to encourage the development of analytical reading skills and deeper understanding of mathematical texts. The fact that a smaller proportion of students face direct difficulties in understanding the texts themselves could be attributed to gaps in students' knowledge, lack of practice, or a gap between the complexity of the text and the students' comprehension skills.

The findings also indicate that challenges such as translating word problems into mathematical expressions, identifying data and information, and selecting keywords and operations vary across

students. Neutral responses suggest that some of these difficulties are occasional or influenced by contextual factors such as the type and complexity of the problem.

When it comes to selecting the appropriate methodology for problem solving, most students demonstrate the ability to do so. However, a subset of students requires additional training and guidance to develop stronger systematic thinking skills. It is also noteworthy that the effort required to solve word problems compared to traditional exercises reflects both psychological and skill-related challenges, highlighting the need for additional support to increase efficiency and confidence in handling these types of tasks. Overall, these results highlight the need for educational programs designed to improve text analysis skills, enhance mathematical problem-solving strategies, and provide diverse examples tailored to students' varying abilities. Such measures are essential to help students effectively overcome these challenges.

The fourth section asked students to specify about the methods they used to solve math word problems. The results of the analysis of the fourth question are presented in (Table 6).

Table 6. *Methods used by students to solve math word problems*

The statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I practice solving word problems in mathematics through homework	6%	16%	35%	26%	17%
I have learned methods for solving word problems in mathematics	2%	16%	27%	29%	27%
If I get stuck on a word problem in mathematics, I give up	32%	24%	33%	9%	3%
If I find a word problem in mathematics difficult, I tend to guess the answer	32%	25%	29%	9%	5%
I make sure that the solution meets all the conditions stated in the word problem	2%	5%	36%	28%	29%
I check that the solution to the word problem is correct	1%	6%	22%	34%	37%
I get low grades on tests involving word problems in mathematics	22%	27%	34%	13%	4%
I use different methods to understand the word problem in mathematics, such as drawing shapes and illustrations	0%	9%	29%	30%	31%
After solving the problem, I think about whether it could be solved in another way	12%	16%	27%	25%	21%

Note: The percentages were rounded to the closest integer

The Chi-square test for this dataset reveals a strong association between the variables regarding the degree of agreement ($p<0.001$). The observed frequencies show significant deviations from the expected frequencies, indicating meaningful relationships among the analyzed categories ($\chi 2=255.46$; $p\approx 1.15\times 10^{-36}$; $df=32$).

The findings highlights various aspects related to students' habits, skills, and strategies in dealing with mathematical word problems. Regarding practice and training, the results show that a significant number of students solve problems through homework, emphasizing the importance of homework as a tool to strengthen practice and improve performance.

In terms of strategies, it is evident that students use diverse methods to understand problems, such as drawing and visualization. This reflects an awareness among some students of the value of using multiple approaches to analyze mathematical texts. However, there is still room to enhance these skills for students who have not fully adopted such methods.

When it comes to verification and checking, the results indicate that most students place great importance on verifying their solutions and ensuring they meet the conditions of the problem. This reflects an awareness of methodology and the importance of accuracy. However, some students struggle

with difficult problems, often resorting to guessing or giving up. This highlights the need to build confidence and equip students with the skills necessary to tackle challenges effectively.

As for creative thinking and reflecting on solutions, a fair number of students consider alternative ways to solve problems after completing them, showing some level of critical thinking. However, this area requires further encouragement and development.

Overall, the results underline the importance of providing guided training, teaching students effective strategies for analyzing texts and solving problems, and fostering a supportive learning environment that promotes creativity and confidence. It is also crucial to help students overcome feelings of frustration when facing difficulties.

In the fifth section students were asked how prepared are they to teach word problems in the future. The results of the analysis of the fifth question are shown in Table 7.

Table 7. *Students' opinions about how prepared are they to teach word problems.*

The statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am confident in my ability to solve math problems with text	2%	5%	39%	35%	19%
I am confident that I will be able to teach my students to solve math problems with text	1%	8%	24%	43%	24%

Note: The percentages were rounded to the closest integer

The Chi-square test for this dataset demonstrates a significant association between the variables concerning the degree of agreement ($p<0.001$). The calculated Chi-square statistic reveals substantial deviations between the observed and expected frequencies, underscoring the meaningful relationships among the analyzed categories ($\chi 2=40.68$; $p<0.001$; $df=4$).

Most students report confidence in their ability to solve word-based math problems, indicating good preparation to handle this type of task. However, a significant proportion of students remain neutral, which may suggest hesitation or the need for more training to increase their confidence.

Regarding the ability to teach word problem-solving, a large percentage of participants expressed high confidence in their teaching skills. However, the presence of some students who lack sufficient confidence highlights the importance of providing training programs focused on developing teaching skills in general and teaching strategies for solving word problems, in particular.

Overall, the results show a positive trend in building confidence, with a need for additional support to ensure all students feel prepared and capable of solving and teaching word problems effectively.

4.2 Conclusions

The general aim of this study was to **examines the attitudes and opinions of future primary school teachers about the importance, utility, and challenges of mathematical word problems.**

Overall, many students expressed appreciation and understanding of the educational benefits of word problems. Regarding their feelings, there was a variation in students' attitudes towards word problems; some found them interesting while others remained neutral. Additionally, the results indicated that some students lack self-regulation and adequate training. This study aimed to answer the following questions:

1. **What is the importance of mathematical word problems from the point of view of students (future primary school teachers)?**

It is clear that most students agree that solving word problems is considered an end in itself in teaching mathematics and that every student must possess the skills to solve them. They also realize the value of word problems in enhancing logical thinking, applying mathematical concepts to real-life scenarios, and developing the ability to deal with daily challenges. In addition, most students see the benefits of word

problems in improving self-regulation of thinking processes. However, less than half of the students believe that solving word problems may contribute to increasing skills related to text comprehension. This may be due to their belief that the skill of understanding texts helps to understand word problems and not the other way around.

Despite these good percentages that recognize the importance of word problems in mathematics, we cannot ignore the opinions of students who did not agree on this importance, even if they were a minority. This distribution of results indicates that there are still students who do not see word problems as important, suggesting that more focus may be needed to fully convey the value of word problems to all students.

2. **What are the feelings of students (future primary school teachers) towards mathematical word problems?**

The results indicate that there is a variation in students' opinions towards word problems in mathematics. While a significant portion of students agreed that solving word problems is more interesting, the majority remained neutral. This suggest-the importance of diversifying the types of problems presented to make learning more engaging. On the other hand, most students expressed no fear of solving these problems, yet the majority were neutral or agreed, highlighting the need for additional training to boost their confidence. Additionally, a large proportion of students feel an increase in self-confidence when they succeed in solving a difficult word problem, underscoring the importance of incorporating complex problems into the curriculum. Teaching students various strategies to help them solve word problems is also crucial. Although many students do not feel anxious when solving such problems, it remains essential to provide additional support for the small group that still experiences anxiety, aiming to reduce stress and improve overall performance in solving mathematical word problems.

3. **What difficulties do students (future primary school teachers) face in solving mathematical word problems?**

The results showed that a large percentage of university students (future primary school teachers) do not face difficulties when solving mathematical word problems. However, we cannot ignore the percentage that does suffer from difficulties, even if they are minor. This confirms the ongoing necessity for teachers and curriculum developers to take the necessary measures to enhance students' skills in solving and understanding these types of problems, examples of which were given above. Addressing these issues from a young age may prevent students from carrying these difficulties with them into the university stage.

4. **What methods do students (future primary school teachers) use to solve mathematical word problems?**

Overall, the results indicate that most students possess skills and strategies for solving word problems, but there is a notable variation in their practices and proficiency. While a significant portion of students practice solving word problems through homework, some still show a lack of adequate training. Despite the majority having learned effective strategies for solving word problems, we cannot ignore the clear gap in teaching these methods to some students. Many students demonstrate perseverance and accuracy in solving word problems and verifying their solutions, while others suffer from a lack of self-organization and attention to detail. A large percentage of students do not resort to guessing when faced with difficulty, but some still lack self-motivation. Additionally, many students struggle to achieve good grades on tests involving word problems, reflecting a need for better educational strategies. Although many students use various methods to understand problems, some still need to learn more effective techniques. Finally, there is a need to foster critical thinking and encourage creativity among students, as a significant portion do not consider alternative methods for solving problems after finding a solution.

5. **How prepared are future primary school teachers to solve and teach mathematical word problems in the future?**

The data reveals a generally positive outlook among students regarding their confidence in solving and teaching math word problems. The confidence in teaching these problems is higher than their confidence in solving them, which might indicate a strong commitment to improving their skills for future teaching roles.

5. Recommendations

Based on the results, it is recommended that teachers and curriculum developers take several steps to enhance students' skills in solving word problems in mathematics. These steps include offering a variety of both word and non-word problems to make learning more engaging and inclusive for all students, providing additional and intensive training for students who show a lack of practice in solving these problems to boost their confidence and abilities, and teaching students a number of diverse strategies for solving word problems, allowing them to choose the most appropriate approach for each problem.

Additionally, it is important to offer support and assistance to students who experience anxiety when solving problems through interactive and targeted activities that reduce stress and improve performance. Encouraging students to think of alternative ways to solve problems after reaching a solution will enhance their critical and creative thinking skills.

Students should also be encouraged to think about verifying the correctness of their solutions and paying attention to fine details to ensure accuracy. Developing new and effective teaching strategies to improve students' performance on tests involving word problems by using realistic and engaging examples is essential. Finally, fostering students' self-motivation by rewarding perseverance and accuracy in problem-solving, and encouraging them not to give up when faced with difficulties, is crucial.

Following these recommendations can contribute to improving students' proficiency in solving word problems and better prepare them for teaching these skills in the future.

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