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Senior High School Students' Ability in Mathematical Word Problems

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ABSTRACT

Nowadays, students have trouble solving word puzzles, even though they are trained to conduct another mathematical activity. The primary purpose of this study was to enhance the students' ability to solve word problems. A questionnaire was used as a data-gathering tool, and the descriptive survey-correlational design was used. The data were treated using frequencies, ratios, weighted mean, and correlation analysis. The research sample consisted of 286 high school students from the University of La Salette, Incorporated in Santiago City. The majority of students are female, and took ABM as their strand. The findings of the study showed that choosing/writing an appropriate equation and performing it in a given problem affects most students' ability to solve word problems. Moreover, the results showed that students were not sure of what they will feel when they encounter a complicated word problem. Furthermore, the study implies that their teachers did not allow them to use different strategies in solving word problems. Correlation analysis revealed that the different factors such as understanding word problems; attitudes of the students towards solving word problems; prior knowledge about the basic concept of math; and Teacher's instructional techniques are highly and positively correlated to one another. The results imply that the teachers should be encouraged and be familiarized in using digital teaching methods and other significant emerging mathematics teaching and learning developments.

Keywords: mathematics, word problems, attitudes, teaching strategies

INTRODUCTION

Mathematics is part of our college existence and part of our whole life. We depend on a statistical understanding whenever we intend to buy or select an insurance or wellness package. To successfully learn mathematics, students must speak the language of mathematics [1]. An essential component of mathematics training is solving a word problem. Real-world problems involving mathematics solutions usually do not come to use as equations ready to be translated but rather word or pictorial representations that must be represented symbolically exploited and solved. For this reason, word problems are introduced in the earliest stages of mathematics instruction [2]. Word problems as verbal descriptions of problem situations wherein one or more questions are raised, which can be obtained by applying mathematical operations to numerical data available in the problem statement [3]. The mathematics word problems among mathematics problems mainly deal with relating real-world situations to mathematical concepts. Such issues help students to use their mathematics knowledge in solving their daily problems. Unfortunately, in day-to-day work, students find it challenging to solve word problems, even though they are prepared to conduct another mathematical activity [4a]. During the school year 2016-2017, 26 grade 11 students failed on a senior high school's different mathematics subject. Also, during the school year 2017-2018, 69 students failed in the same subjects. Based on the study of [5a] students failed because they have low scores on their quarterly assessments. The researcher asks some of the students who failed why they got a low score on their

examination, and the typical answer of the students is that they did not usually answer the last part of the exam, which is problem-solving. This student conducts simple arithmetic operations effectively, such as addition, subtraction, multiplication, division, and capability for estimation and calculation activities with numbers and equations. However, several students fail to decide what to do while the mechanism is behind word problems. In some instances, students trying to solve a word problem will recognize some aspects of the problem but may not perform all necessary operations.

Mathematical word problems are activities in which essential knowledge about a subject is presented as text rather than mathematical notation. As a result, it is believed that students' capacity to solve a mathematical word problem depends not only on their ability to execute the requisite mathematical operations but also on their ability to correctly interpret the word problem's text. These two things are linked. Developing a better comprehension of the word dilemma's text is a crucial move forward in conducting the right mathematical calculations. The biggest challenge for word problem solvers is to ensure that the problem statement is well understood [4b].

According to the study conducted by [5b], word problem solving is practiced by several writers whose recommendations have been developed for some studies and a successful problem-solver understands math vocabulary, translating keywords to a mathematical representation having prior knowledge, confidence in themselves, and teacher instructional techniques. His study also revealed that the students are not enough to learn mathematics by solving a task that involves calculating or storing concepts and operators. Students should be able to address word issues that promote and improve logical skills and reasoning.

According to researchers [6], understanding the question, particularly the terms used in certain problems, is a difficult part of solving a word problem. One of the difficulties in solving a word problem is not remembering such terms, which may lead to incorrect mathematical operations being applied. [7a] makes a comparison between studying math and learning a second language. Often relates mathematics to language, stating, "Mathematics is a type of language in which communication is accomplished by symbols, terminologies, and grammar." Students cannot succeed in mathematics until they understand the context of the words they learn in mathematics concepts and develop the requisite math skills. It applies to all topics, and students must be familiar with the subject's basic language to grasp the content.

Several studies have found that a pupil's skill to solve mathematical problems depends on their mathematics success. It is challenging for students to deal with something that they lack prior knowledge about specific areas such as mathematics [7b]. As shown in the research of [8], language is one of the most common math misunderstanding sources. To be competitive in mathematics, students need a deeper comprehension of mathematical vocabulary. Understanding the lesson task, numerous assessments, and, most importantly, solving word problems are all influenced by mathematical vocabulary. As a result, a shortage of mathematical vocabulary affects problem-solving skills. A strong correlation between problem-solving performance and vocabulary seems to exist. In mathematics courses, a student's capacity to comprehend vocabulary is linked to his or her ability to solve word problems. According to [9], students believe that knowing mathematical words' meaning is essential to improve their performance. Investigated the connection between students' correct knowledge of mathematical terminology and their success, emphasizing word problem comprehension and using relevant mathematical expressions in word problem-solving. Explores the impact of vocabulary instruction on students' awareness of mathematical concepts; students are directly taught mathematical terminology in various forms, which allows them to develop a broader understanding of mathematical concepts. [10] referred that translation is essential in solving word problems, but they can only be made after a successful problem solving is created. [21] found that spending time writing down topic-related terms and exploring their significance in the light of the problem gives students more chances to figure out what to do about the issues.

The terms required for mathematical communication, mathematics logic, and precision are described as mathematics vocabulary in this review. Mathematics vocabulary generally involves words related to size, shape, measurement, and time and space positions [11]. According to [12] there are four types of mathematical terminology have been identified: scientific, sub-technical, common, and symbolic.

First, they describe technical language as mathematical terms with one interpretation (e.g., trapezoid, rational number). Second, sub-technical jargon includes many definitions, such as volume, which degrees, and crosses all the fields of material and everyday perceptions. Proposed that certain terms' conceptualization may be troublesome to students due to the difference in their effect. Thirdly, the general vocabulary of mathematics differed from the terms available in traditional reading environments. For certain readers, words like number line, negative, notation, and straighter are always problematic. The last type is symbolic, mathematical vocabulary, for example, 4/2. These terms may be challenging for students since they reflect extremely complex numbers; they are hard to conceptualize. Depending on the number sense, they may be represented differently. They also proposed a subcategory of symbolic vocabulary, including abbreviations from mathematics, such as oz (inches). They suggested that knowing these categories could help teachers understand students' cognitive requirements when they grab the terms in their mathematics textbooks and the teacher's oral explanations, as mentioned in [13].

The studies looked at the essence of mathematical word problems, and the role of vocabulary knowledge in understanding and conceptualizing the issues among students were noted. A small study by [14] demonstrated the effects of vocabulary instruction on a standardized test. They compared a control group and a group provided with learning activities focused on academic vocabulary according to each subject area's grade, including math. The students were given examples and explanations of concepts using pictures and diagrams and leading brainstorming and discussion until students formulated definitions in their own words. To review the academic vocabulary, students periodically played vocabulary games. The students were also given periodic academic vocabulary tests. The results showed the students who received vocabulary instruction gained as high as 93% on the standardized test during two school year periods.

Additionally, [15] found that the whole group analysis of the word problem's language has helped the students become more confident in their approach to problem-solving tasks and solve word problems. Some thought it would be difficult for them to resolve every word dilemma since they have not the requisite expertise to succeed. The [16] team knows that students who are not adequately qualified and dependent on their abilities to reach the classroom have a less likelihood of progress. Both claim that the resistance comes from confidence. Students with more faith devote more time addressing a word puzzle, and they utilize proof such as a journal when it is not difficult. It proves that the students' attitudes may also be a factor for becoming a good problem solver.

Researchers [17] established essential factors that lead to students' attitudes towards studying mathematics. This involves students themselves, the classroom, teachers' values and attitudes, and their teaching methods. Learning mathematics requires thought and reasoning, but it often relies on learners' attitudes towards learning and mathematics. State that attitudes consist of perceptual, emotional, and behavioral responses that individuals show to the target or surroundings based on their emotions or interest. The mental aspect of philosophy is what the person feels or believes in mathematics. The functional aspect of the attitude is the person's feeling or emotion concerned with studying mathematics. The practical aspect is thus the guiding force behind students' interest in mathematics. In addition, the functional component is often affected by the belief created by the cognitive factor of attitude, which produces a way of thought that is persistent over time and influences students' feelings of studying mathematics [18]. The attitude's behavioral and emotional elements are interrelated and connect profoundly with each other. The behavioral element of perspective seems to react in some way to mathematics learning [19]. The realistic mentality often affects the interpersonal mood. Students who are secure in mathematics are correlated with mathematics progress, which is perceived as constructive. If students are not happy with mathematics, they cannot achieve progress, and ineffective behavior is negative [20]. Consequently, the behavioral aspect of the attitude often influences the logical portion of the personality. As students see the value of mathematics in real life, they feel engaged, optimistic, and linked to their learning. The three components of attitude, trust, and value of mathematics and interaction are interrelated [19]. Attitudes are described as "a summary evaluation of the object of thought". They are inclinations and predispositions that guide an individual's decisions and convince them to make a positive or negative decision. Attitudes change with time. Three components influence attitudes, according to the Multicomponent Mindset Model. They are logical (beliefs, thoughts, attributes), emotional (feelings, emotions), and behavioral (previous events, experiences) [21]. When looking at the study on student expectations of mathematics, several factors come into effect. These

variables can be classified into three groups. The parameters were then compared with the students. First are the students' arithmetic ratings, anxiety regarding education, student self-efficacy and self-concept, extrinsic motivation, and high school knowledge are some of these factors. Second are the considerations relevant to education, teaching tools, teaching personnel, teacher's content awareness and personality, and the teaching subjects with real-life enrichment. Examples are other students' views about mathematics classes, training techniques, encouragement, private education, mathematics teaching, and mathematics teaching. Finally, students are also influenced by influences in their home environment and society. "Mathematical mindset Students are shaped by factors such as their parents' educational backgrounds, careers, and ambitions Mathematical attitudes [22]. Students view mathematics differently for a variety of purposes. Math is often portrayed as a difficult, cold, abstract, analytical, and ultra-rational topic in the popular eye. However, according to some studies, students have a positive attitude about mathematics. Math is often regarded as a crucial and mostly male-dominated topic. Girls, in comparison to boys, lack confidence in mathematical amounts and view mathematics as a male area, according to several studies [23].

[24] has found that one of the important influences influencing mathematics teaching and learning is the students' perspective, view on the area of mathematics, and social identity. The relationship between fifth-grade students' attitude toward mathematics, self-efficacy values, problem-solving, and achievement was investigated, and a strong relationship between attitude and achievement was discovered. The values, behaviors, and emotional responses that students have when studying mathematics were examined. The aim was to demonstrate that positive attributes, viewpoints, and attitudes towards themselves as students provide motivation and achievement objectives in dealing with this question. He proposed that policies and interventions for the prevention and rehabilitation of mathematics learning disorders and emotional education in this area of specialization be established based on the results. The goal will be to improve students' involvement in mathematics when learning it and grow their perceptions, principles, and emotional responses.

[25] looked at the effect of inspiration on high school students' academic success in mathematics. When the level of encouragement was used as a variable of significance in academic achievement in mathematics depending on the degree of motivation, the results showed a substantial difference. Students that are highly motivated outperform students who are less driven academically. The reasons for students' involvement in schooling and their effects on academic success are deemed critical aspects of successful learning. A learner's response to education, on the other hand, decides how far he or she can go in school. The importance of inspiration in a child's mathematics instruction cannot be overstated.

According to [26], the mindset towards mathematics is one of the most significant influences for influencing success and mathematical achievement. In the research "Experience of attitude in mathematical education," the independent variable (attitude) for girls and boys was closely related to the contingent variable (Mathematics Test).

However, several researches have shown no significant differences in male and female students' attitudes toward mathematics. Other results indicate that the participants' attitudes about mathematics improved in the third year compared to the first year and that there is a mentality gap between grades 6, 7, and 8 [22]. As a result, it is possible to conclude that students' attitudes about mathematics are somewhat subjective and vary widely. Several studies have been carried out to determine the connection between students' attitudes toward mathematics and their academic achievement. Most studies have found a link between students' attitudes toward mathematics and their academic performance and problem-solving achievement. Studies have also found a link between students' attitudes toward problem-solving in patience, confidence, and willingness [27].

Students trained in a sporting context can find that the activity is more fun because it varies from repetitive mathematics exercises. They believe that linking mathematics to math problems in sports fields will provide a framework for calculation, estimate, and tessellation. If students had played a basketball game, this activity might provide them with a visual model to determine why math is required to solve the issue. Since athletics are also part of students' normal lives, they do not have to cope with large quantities

of knowledge and feel more interested in the tasks. In solving mathematical problems, students are relaxed because they can solve problems at multiple stages and in other forms [28]. Using their informal methods, students will also address challenges instead of the structured mechanisms they are unaware of. Until carrying out more solving and interpretation, students should describe the challenge using their symbols and vocabulary. [29] examined the effect of utilizing mathematical games on the perceptions of college students towards mathematical learning. The students from the studies who used games were more interactive in their classes, got interested, and enjoyed studying mathematics.

Theoretical Framework

They agreed with Brunner's instructional philosophy in this review. According to Brunner's philosophy, teaching is a collection of guidelines for gaining experience or abilities and methods for assessing and comparing results [30]. This theory helps the researcher determine the factors that affect a student's capacity to solve mathematical words problems. Brunner identifies four main characteristics that must be used. Predisposition to learn (attitudes of students), a group of information composition (level of previous knowledge of students), comprehension (mathematical vocabulary of students), and curriculum sequencing (teachers' teaching techniques) are some of these factors. The principle goes on to say that the interactions can consider the learner's various stages of thought. This hypothesis was chosen because it aligns with the study's definition. It helps learners grasp concepts by translating them into prior awareness of the subject structure; thus, it creates a lesson of concepts organized in a hierarchical order [31]. It also enabled students to grasp concepts better and develop their achievement, attitude, and motion series, fostering classroom engagement once again. We should prepare to sequence so that students can be praised and inspired since studying mathematics is a continuous process of building on previous knowledge. It also culminated in further student experiences with teachers and the school. Figure 1 depicts the study's paradigm, which includes the variables that are explained.

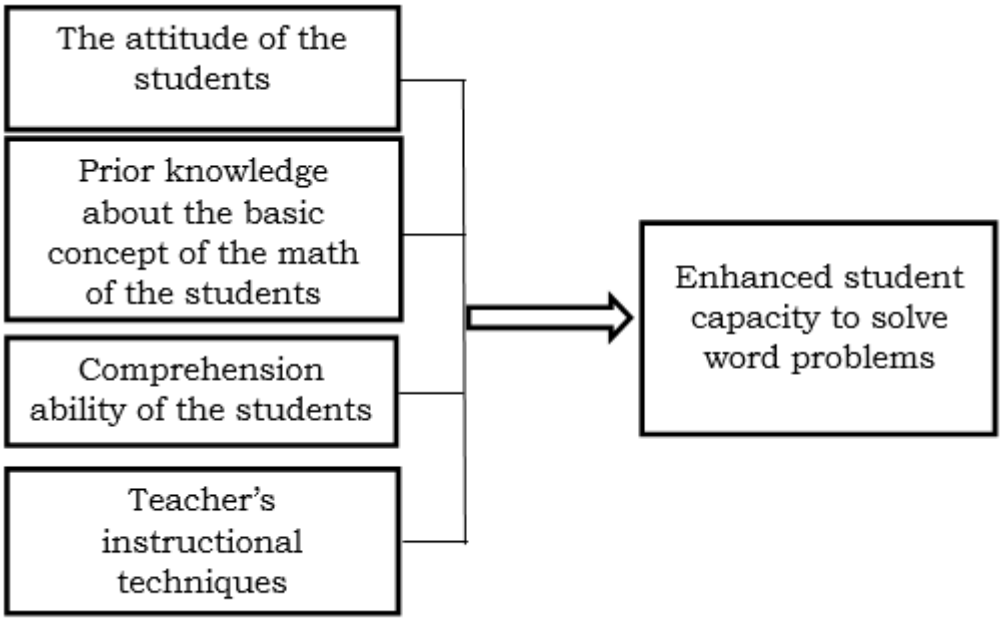

Fig. 1. Paradigm of the Study

According to the paradigm of the study, the ability of the students in solving word problem depends on the various factors: attitudes of the students towards solving word problems, prior knowledge of the students about the basic concept of mathematics, the ability of the students to understand the word problem and the teachers' instructional techniques. These variables that improve students' abilities to solve word problems are the independent variables they need before performing the study.

Research Question

The primary purpose of this study was to assess students' ability to solve word problems. The study aimed to find answers to the following questions:

1. What is the student's profile in terms of age; sex; and strand?

2. What is the level of perception of the respondents to enhance student's ability in solving word problems in terms of:

   2.1 understanding word problems;
   2.2 attitudes of the students towards solving word problems;
   2.3 prior knowledge about the basic concept of math; and
   2.4 teacher's instructional techniques?

3. What is the significant relationship between the factors and the profile of the respondent?

4. What is the correlation between the students' attitude towards solving word problems, understanding word problems, level of prior knowledge about the basic concept of math, and teacher's instructional techniques?

METHODS AND MATERIALS

The study aimed to assess the student's ability to solve word problems. The descriptive correlation form was also used. The descriptive-correlation method focuses on the factors affecting students' ability to solve word problems. This study was carried out in the Department of High Schools of the University of La Salette. The Senior Campus is in Dubinan East, Santiago City, and Isabela. It is situated on the island of Malvar, Santiago City, Isabela. La Salette University is a private school with the largest population in the city. This school is also certified to Level II PAASCU.

Respondents of the study were 286 senior high school students out of 1113 students. The respondents were determined by using the Lynch formula: $n = \frac{NZ^2 \cdot p\,(1-p)}{Nd^2+Z^2 \cdot p\,(1-p)}$ where N = 1113, which is the total population of the senior high school students with a 1.96 as the value of the standard variables (Z) for reliability level (d) of 95% and 0.5 as the most significant possible proportion (p). Stratified random sampling was used to determine the respondents to get a representative of the different strand of the total population. The research instrument used was a questionnaire specifically designed for the students. The questionnaire was adapted based on the questionnaire used by [5]. However, the researcher made some modifications to suit students' ability to solve word problems. The questionnaire consists of two parts. The first part are the students' profiles, while the second part is the different statements that describe the factors that affect the student's ability to solve word problems. The students were required to show their agreement rate on the following factors by putting a checkmark to the column provided the option 5, 4, 3, 2, 1 meaning strongly agree (SA), agree (A), Neutral (N), disagree (D) and strongly disagree (SD) for the factors in understanding word problems and attitudes toward word problems while excellent (E), very good (VG), good (G), fair (F) and poor (P) for the factors in their level of prior knowledge and teachers' instructional techniques as perceived by the respondents and used the five-point Likert.

The researcher requested approval from the school authorities through a letter of reference from the principal. Questionnaires were circulated with the consent of instructors and school authorities. Coordination was done to provide the students with an adequate period to answer the questionnaire. All the students' responses were considered confidential and shall not be used in any way outside the study's limits.

The data collected were checked and labeled. The data were collected in a Social Science Statistical Package (SPSS, version 21) that conducted the study.

Weighted mean, a basic frequency count, percentage, and ranking were used to assess the variables to maximize students' capacity to solve word problems to describe the respondents' profile and the measured. Correlation test was used to determine the significant relationship between the factors affecting students' ability to solve word problems in terms of the respondents' profile. Used the same tool to determine the correlation between the students' attitude towards solving word problems, understanding word problems, and prior knowledge about the basic concept of math and teacher instructional techniques. Hypothesis acceptance or rejection will be done at a 0.05 level of significance.

RESULTS AND DISCUSSIONS

Demographic Profile of the Respondents

Table 1. Frequency & Percentage of the Respondents as to Age

Age	Frequency	Percentage
15	18	6.30
16	128	44.80
17	116	40.60
18	24	8.40
Total	286	100.00

Table 1 presents the distribution of respondents in terms of age. It shows that most of the respondents' age was 16 years old with a frequency of 128 or 44.80%, followed by the ages 17, 18, and 15 with 40.60, 8.40, and 6.30 respectively. It means that this study meets the Department of Education's official age requirement for Senior High School students.

Table 2. The Frequency & Percentage of the Respondents as to their Sex

Sex	Frequency	Percentage
Male	128	44.80
Female	158	55.20
Total	286	100.00

Table 2 presents the sex distribution of respondents. The findings indicate a higher proportion of females than males with 55.20 and 44.80, respectively. It means that the education department and women have made significant strides in education and schools over recent decades. Education indicators show that female generally does better than male [32]. This implies that the gap in favor of females is even noticeable at a young age since girls often make better marks than boys in elementary school.

Table 3. Frequency & Percentage of the Respondents as to Strand

Strand	Frequency	Percentage
ABM	127	44.40
GAS	24	8.40
HUMSS	45	15.70
STEM	90	31.50
Total	286	100.00

Table 3 presents the distribution of the respondents in terms of their strand. Looking closely at the table, most students are in ABM strands with a percentage of 44.40, followed by STEM, HUMSS, and GAS with a percentage of 31.50 and 15.70, respectively. It coincides with the Department of Education statistics that 90,697 Grade 11 students enrolled under the Academic track, wherein ABM and STEM took the highest enrollees. The ABM Track is the perfect track to choose if a student plans to take Economics, Business

Administration, Accountancy, and Marketing in college. The STEM Track is for those who plan to study Pure and Applied Sciences, Engineering, and Mathematics in college [33].

Level of perception of the respondents to enhance student's ability in solving word problems in terms

Table 4. Understanding word problems

Understanding	Mean	Qualitative Description
1. I can identify the given in the worded problem	3.80	Agree
2. I can determine the unknown in the given problem	3.58	Agree
3. I can illustrate variables use in the given problem	3.47	Agree
4. I can choose/write an appropriate equation in a given problem	3.46	Agree
5. I can analyze the given problem	3.61	Agree
Overall	3.59	Agree

Table 4 presents the students' extent of agreement on the factors affecting students' ability to solve and understand words. This factor's average mean is 3.59, which is translated as agree. Observed that item 1 (I can identify the given in the word problems) has the highest weighted mean among the five (5) statements, and it is interpreted as agree. Item 5 (I can analyze the given problem); item 2 (I can determine the unknown in the problem); item 3 (I can illustrate variables use in the given problem); and item 4 (I can choose/write the appropriate equation in a given problem) interpreted as agree with the mean of 3.61, 3.58, 3.47 and 3.46 respectively. The result shows that in the factor understanding word problem, choosing/writing an appropriate equation to solve word problem is the most challenging part in understanding a word problem. This finding was supported by the study conducted by [34] that the most challenging task in solving a word problem is choosing/writing the appropriate mathematical operation used in solving a word problem. In contrast, [35] states that the most challenging part in understanding a problem is analyzing each mathematical term ranked as second in this study, meaning that students are good in this part.

Table 5. The attitudes of the students towards solving word problems

Attitudes	Mean	Interpretation
1. I can easily solve word problems	3.26	Neutral
2. I enjoy solving word problems	3.35	Neutral
3. I love solving complex word problems	2.97	Neutral
4. I feel motivated when I read word problems	3.10	Neutral
Overall	3.17	Neutral

Table 5 shows the list of statements regarding students' attitudes towards mathematics as one factor affecting their ability to solve word problems with their corresponding weighted mean and qualitative interpretation. With a weighted mean average of 3.17, the overall impact on students' ability to solve word problems, particularly their attitudes to solve a word problem, is not certain. Of any statement given, item 1 (I like to solve the word problem) was the first with a weighted mean of 3.35, while item 3 (I like to solve a complicated word problem) was the lowest with a weighted mean of 2.97, but all were still understood to be not certain. It implies that students were not sure about what they feel when they encounter word problems. These findings contrast with the study conducted by [36] that students enjoy solving word problems.

Table 6. Level of prior knowledge about the basic concept of math

Level of prior knowledge	Mean	Qualitative Description
1. I can apply the fundamental operations in solving the equation of the problem	3.64	Very Good
2. I can give proofs of my solutions to the problem	3.56	Very Good
3. I am familiar with the use of fundamental operations and another symbol of mathematics	3.45	Very Good
4. I can perform the differential equation in a given problem	3.30	Good
Overall	3.49	Very Good

Table 6 presents the extent of factors affecting students' ability to solve word problems, particularly on their level of prior knowledge of mathematics' basic concept. The average mean of this element is 3.49, which is very good. It implies that the students' level of prior knowledge of basic mathematics does not affect their ability to solve word problems. I observed that item 1 (I can apply the fundamental operations in solving the problem's equation) has the highest weighted mean among the four statements, which is interpreted as very good. It tells that students are very good at applying addition, subtraction, multiplication, and division to solve word problems. Item 2 (I can give proofs to my solutions to the problem) and item 3 (I am familiar with the use of fundamental operation and symbol of mathematics) often translated as really very good with a weighted mean of 3.56 and 3.45 were rank a2 and 3. Item 4 (I can perform the different equations in a given problem) was ranked as fourth and interpreted as good. According to the study conducted by [37], as students are taught and introduced to the application of mathematics, their commitment, trust and mathematical value improve.

Table 7. Teacher's instructional techniques

Teacher's techniques	Mean	Qualitative Description
1. My teachers explained well how to solve the word problem.	4.07	Very Good
2. My teachers allow me to solve the worded problem in any strategies where I should come up with the correct answer	3.78	Very Good
3. My teacher always evaluates us if we were able to solve a worded problem	3.95	Very Good
4. My teacher let me familiarize the concept of basic math	3.99	Very Good
5. My teacher motivates me in solving words problem.	3.80	Very Good
Overall	3.92	Very Good

Table 7 shows the data on the extent of factors affecting students' ability in solving word problems, particularly on the teacher's instructional techniques. These statements were ranked based on the computed weighted mean. The table shows that item 1 ranked first with a weighted mean of 4.07 and interpreted as very good. It implies that their mathematics teachers teach well because they are experts in solving word problems [38]. In Items 4, 3, and 5, the mean of 3.99, 3.95, and 3.80 for ranks 2, 3, and 4. Also, it ranked item 2 as last because the teacher did not teach any strategy to solve word problems [39] easily.

Significant relationship between the factors and profile of the respondents

Table 8 revealed the significant relationship between the respondents' factors and profile to enhance students' ability to solve word problems.

Table 8. Significant relationship between the factors and profile of the respondents

Factors	N	Age		Sex		Strand	
		Asymptotic Significance (2-sided) / p-value	Qualitative Interpretation	Asymptotic Significance (2-sided) / p-value	Qualitative Interpretation	Asymptotic Significance (2-sided) / p-value	Qualitative Interpretation
Understanding word problems	286	0.369	Not Significant	0.003	Significant	0.068	Not Significant
The attitudes of the students towards the solving word problems		0.487	Not Significant	0.552	Not Significant	0.021	Significant
Level of prior knowledge about the basic concept of math		0.223	Not Significant	0.453	Not Significant	0.434	Not Significant
Teacher's instructional techniques		0.411	Not Significant	0.389	Not Significant	0.842	Not Significant

The table shows that the correlation test values: as to factors and age are statistically not significant, with the p-values are 0.369, 0.487, 0.223, and 0.411 at a 0.05 level of significance. The results of this study agree the study of [40] that age should not impact students' comprehension capacities as they solve a word dilemma. According to [41], the students' age is also statistically not applicable to the factor: the students' attitudes towards problem-solving. It proves that when students solve a word dilemma, age does not matter.

As to the factors (attitude of the students, level of prior knowledge, and teachers' techniques) and sex are statistically not significant with the p-values 0.552, 0.453, and 0.389 at 0.05 level of significance, while a factor (understanding word problems) and sex are statistically significant with a p-value of 0.003 at 0.05 level of significance. It implies that understanding word problems significantly affects when students solve word problems regarding sex the students. The results were the same with the finding of [41] that the students' level of prior knowledge in mathematics is statistically not significant to sex. According to [40] that sex is statistically significant to understanding a word problem because females read the problem several times and use various strategies to come up with a correct answer compared to males. In contrast to this, [42] states that understanding students in solving word problems is statistically not significant in terms of sex.

As to the factors (understanding, level of prior knowledge, and teacher's techniques) and strand are statistically not significant with the p-values 0.068, 0.434, and 0.842 at 0.05 level of significance, while a factor (attitude of students) and strand statistically significant with a p-value of 0.021 at 0.05 level of significance. It implies that the students' attitudes towards solving word problems significantly affect a strand of the students. This was agreeing with the findings of [43] that there is a significant relationship between students' attitudes towards solving word problems and the course they are attending.

Significant correlation among factors to enhance student's ability in solving word problems

Table 9. Significant correlation among factors to enhance student's ability in

solving word problems

		Understanding word problems	The attitudes of the students towards the solving word problems	Level of prior knowledge about the basic concept of math	Teacher's instructional techniques
Understanding word problems	Pearson Correlation	1	.582	.607	.349
	Sig. (2-tailed)		.000	.000	.000
	N	286	286	286	286
The attitudes of the students towards the solving word problems	Pearson Correlation	.582	1	.550	.343
	Sig. (2-tailed)	.000		.000	.000
	N	286	286	286	286
Level of prior knowledge about the basic concept of math	Pearson Correlation	.607	.550	1	.458
	Sig. (2-tailed)	.000	.000		.000
	N	286	286	286	286
Teacher's instructional techniques	Pearson Correlation	.349	.343	.458	1
	Sig. (2-tailed)	.000	.000	.000	
	N	286	286	286	286

**. Correlation is significant at the 0.05 level (2-tailed).

Table 9 shows the significant correlation among factors to enhance student's ability in solving word problems.

The table revealed that the Pearson correlation values (0.582, 0.507, 0.349, 0.550, 0.343, 0.607, 0.458, and 0.458) and statistically significant with a p-value of 0.000. It suggests a positive and high correlation among factors to enhance students' ability to solve word problems. This is consistent with the findings of [44], which states that students' attitudes toward solving word problems and their capacity to understand the word problem are positively correlated. Furthermore, according to [45], the students' attitudes towards solving word problems have a positive and high correlation to teachers' instructional techniques because teachers manage the class with various activities and educational tools appropriate to students' needs. It is also because the teacher knew the psychology of teaching, where students learn more and meet their needs.

CONCLUSIONS

The following conclusions are drawn because of the afore findings: Senior high school students enter their school at the right age. Students find difficulties in solving mathematical word problems because students are not interested in doing the task. The age of the respondents does not affect the willingness of the respondents to address issues with language. However, the sex and strand of the respondents affected the students' willingness to grasp a word dilemma and students' attitudes towards solving word issues, respectively. The different factors to enhance students' ability in solving word problems are interrelated. The best factor to enhance students' ability in solving a word problem is to understand a word problem.

RECOMMENDATIONS FOR FUTURE STUDY

In light of the findings mentioned above, the following recommendations are proposed: (1) Students should

be at the right age when entering senior high school to become matured and responsible in doing assigned task. (2) The teachers must plan activities related to the students' knowledge, practices and attitudes. (3) Understanding and problem-solving abilities of students must be taught hand in hand to improve teacher-student and student-student partnerships. (4) Further research should be conducted that relates students' problem-solving skills, attitudes towards word problems, and students' overall achievement towards problem-solving.

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