

# The Difficulties in Solving Word Mathematical Problems among Fourth-Grade Students in the Al-Dakhiliyah Governorate in the Sultanate of Oman

Mohammed Nassir Al Riyami, Said Ali Al Hadhrami

College of Arts and Sciences, University of Nizwa, Nizwa, Oman

Email: mohammednassir@unizwa.edu.om, saidhadhrami@unizwa.edu.om

**How to cite this paper:** Al Riyami, M. N., & Al Hadhrami, S. A. (2024). The Difficulties in Solving Word Mathematical Problems among Fourth-Grade Students in the Al-Dakhiliyah Governorate in the Sultanate of Oman. *Creative Education*, 15, 1652-1667. <https://doi.org/10.4236/ce.2024.158099>

**Received:** June 27, 2024

**Accepted:** August 9, 2024

**Published:** August 12, 2024

Copyright © 2024 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

---

## Abstract

This study aimed to identify the difficulties of solving word mathematical problems among fourth-grade students in the second field in the Al-Dakhiliyah Governorate in the Sultanate of Oman. It also provided proposals for solving the difficulties facing the students in such problems. Descriptive approach as well as a questionnaire was used in this study. The data were collected from a sample of size (107) female teachers. The questionnaire consisted of (24) items, distributed over 4 main sections as follows: difficulties related to internal factors among students, difficulties related to the teachers, difficulties related to the textbooks, and difficulties related to the nature of the word mathematical problems. The study reached a set of results and the most important of which are: there are difficulties related to internal factors among students, and the most prominent of which are “weak level of reading comprehension” as well as “weak ability to apply the four steps of problem solving: understand, plan, solve, verify.” There are difficulties related to the teacher, and most notably is “limitation to modeling the solution” and “lack of training students in using graphical representations for word mathematical problems”. There are also difficulties related to textbooks, and the most prominent of which are: “lack of remedial exercises” and “not taking into account suspense and attraction in presenting word problems”. Finally, there are difficulties related to the nature of the word mathematical problems, and the most prominent of which are: “difficulty in determining what is required in the problem” and “the presence of excess information”.

## Keywords

Degree of Difficulty, Mathematical Word Problems

---

## 1. Introduction

Mathematics is one of the important and influential subjects in the rapid changes and rapid development taking place in the world in general and in the Sultanate of Oman in particular. It is the subject of thinking and capable of training students to solve problems. Therefore, mathematics curricula must keep pace with this development, so that the student can through it meet the requirements and challenges of the twenty-first century.

Mathematics is one of the elements and materials that influence the current scientific and technological developments taking place, and what is expected in the future. This necessitates mathematics curricula to respond to the data of these developments. The twenty-first century is characterized by the development of means of communication, the expansion of technology, and the use of computers. Electronic technology has imposed itself on the nature of mathematical knowledge necessary to keep pace with these rapid changes, which clearly shows the urgent need for educational curricula that suit the challenges of this century.

Curricula contribute to preparing citizens who are able to absorb this technology and able to bring about change in their society, who participate in drawing the path of progress, who think with their minds and not with the minds of others, and who are able to solve their problems and the problems of their society with confidence and ability (Jabr, Fawara, & Al-Titi, 2011).

Due to the importance of mathematics books, international mathematics standards and principles have emphasized the necessity of building the curriculum in a way that helps students achieve high mathematical ability, by including in the books activities with meanings that stem from situations that require creative thinking, collecting data, applying laws, discoveries, and forming new knowledge and exchanging. Ideas among students, include testing the validity of those ideas, justifying the validity of what has been reached, and then contemplating the activities and trying to enrich them (NCTM, 2000).

Mathematics has received a large share of attention all over the world, and its curricula have been developed to keep pace with the development that has affected science curricula and to meet the renewed needs of the individual and society as a result of scientific and technical progress, and the resulting change in modern lifestyles (Abu Sal, 2000).

Despite this interest, many students suffer from severe difficulties in mathematics. Abdel-Wahab and Abu Sitta (2008) indicated that difficulty in learning mathematics represents the most important and common area of learning difficulties, and the problem becomes more complex when these students struggle to understand the basics of mathematics.

Al-Nadhir, Khashan, and Al-Salouli (2012) believe that the importance of solving the mathematical problem lies in it is the final product of the education process. Knowledge, skills, concepts, mathematical generalizations, and all the topics in themselves, are means and tools that help students solve their other

academic problems and are not considered a real goal (Al-Salami, 2013).

Al-Bashiti (2007) indicated that the topic of problem solving has, in the past two decades, received a great deal of attention from mathematics teaching leaders, and has even become one of the main goals of teaching mathematics to provide students with the skill to solve problems in general and word problems in particular.

Al-Amer (2009) explained the goals of solving word problems in developing methods of thinking and logical education, and improving methods and techniques for solving problems, as well as teaching reading mathematics.

Al-Maqoushi (2001) explained that solving a mathematical problem requires searching for unknown means. To reach a clearly defined goal, the unknown means that are used must not be easy to extract from the goal. Rather, searching for them requires effort.

Solving a mathematical problem is one of the most important topics that has occupied specialists in the field of mathematics education and those interested in teaching methods. The learner faces difficulty in solving mathematics problems in general and word mathematical problems in particular. The mathematics teacher finds difficulty in giving learners the skill to solve mathematical word problems. The difficulty of solving them is partly due to what the solution requires to analyze its basic elements, finding relationships and links between them, and remembering the previous mathematical rules necessary to reach the solution. All of this is difficult for the learner to acquire unless the teacher has experience in teaching word mathematical problems (Acosta-Tello, 2010).

Many students suffer from difficulties in solving mathematical word problems. In the study of Hodson (2010), mentioned in (Shabir, 2011), there is a clear reference to the difficulties faced by students in solving mathematical word problems, the reasons for which are attributed to their lack of previous knowledge, in addition to the negative attitude towards mathematics, and the failure to use modern and diverse teaching strategies, and in the study of (Rasras, 2007) he identified a set of mistakes in solving a mathematical problem among students, such as: specifying the information and what is required in the problem, understanding its language, representing the information with an illustration, and ensuring the correctness of the solution, whether in reading and understanding the mathematical problem and translating, planning its solution or implementing it and ensuring its correctness.

Muhammad (2007) conducted a study aimed at identifying children's difficulties in mathematics from the point of view of first-grade teachers in basic schools in Yemen. The researcher used a questionnaire tool for a sample of 40 male and female teachers. One of the most important results was that the students found it difficult to deal with mathematics. Word problems related to fractions and ratios, i.e. in the step of understanding the problem and its translation.

Bernadette's (2009) study aimed to identify the difficulties faced by third-grade primary school students in solving word mathematical problems. The study was applied to a sample of three students using a qualitative approach

based on conducting a group of interviews with the three students. The results showed that the most prominent difficulties in solving word problems lie in the poor level of reading comprehension, poor understanding of mathematical concepts, in addition to negative beliefs about mathematics.

Barbu (2010) conducted a study aimed at identifying the difficulties faced by primary school students in solving word problems. The sample consisted of (41) students using the experimental method. The study tool was a test for solving mathematical word problems. The results showed that the study sample face difficulties in solving word problems as a result of the complex linguistic formulation of the problems as well as their weak linguistic vocabulary.

The study (Al-Thabiti, 2011) also dealt with identifying the difficulties of solving mathematical problems among fourth-grade female students in Taif, and the study sample consisted of (135) female teachers. a questionnaire was applied, and the results showed a list of difficulties related to the students themselves, such as: reading, understanding the problem, planning, implementing the solution and ensuring its validity. Understanding the problem was the most difficult of the list.

Abdul Qader (2013) conducted a study aimed at revealing the difficulties of solving word problems among sixth grade students in the Gaza governorates from the point of view of teachers. The researcher used a descriptive approach, and his sample consisted of (120) male and female teachers. The study tool was a questionnaire, and the results showed the presence of high difficulties in the steps of solving the problem.

The study by Ester et al. (2021) indicated that any educational system faces a number of challenges, including knowing how to work in a linguistic and cultural context that would advance the educational process in teaching mathematics. The most prominent of which lies in trying to identify the learner's mathematical awareness and how the information and experiences he has acquired can fit into the language of instruction used in the classroom.

Badawi (2019) mentioned a number of factors affecting the solution of a mathematical problem, which are: the level of reading, the degree of linguistic and lexical complexity, the formulation of the problem and sentence construction, the processes of word comprehension and comprehension of text messages, and the processes involved in performing the mathematical operations required for the solution.

In a study conducted by Al-Arini (2017), which aimed to determine the skills for solving word problems that must be available to sixth-grade female students, determine the extent of their availability, and identify the difficulties of solving them from the teachers' point of view. The study used the descriptive approach, and the questionnaire was the study tool. The study sample consisted of (300) female teachers, and the study concluded that there are difficulties attributed to internal factors among the students, such as low reasoning ability and a weak level of reading comprehension, as well as difficulties attributed to the female teacher, such as: neglecting to train female students to think out loud and use

appropriate solution plans, as well as difficulties attributed to the textbook, represented by its omission of word problems for one or more of the mathematics topics, and finally difficulties attributed to the nature of mathematical problems, such as the difficulty of solving in more than one way and placing numbers in the problem in a different order than it requires.

*Al-Balawi (2007)* also conducted a study aimed at revealing the level of difficulty of the strategic steps for solving a word mathematical problem among middle school students from the point of view of teachers. The researcher used a descriptive approach, and the study tool was a “questionnaire.” To answer the study’s questions after verifying its validity and reliability, it was applied to (42) teachers, and the study reached results, the most notable of which are: that the level of difficulty of “implementing the plan to solve the word problem” was high, while the difficulty levels of (“understanding the word problem”, “Planning to solve the word problem” and “verifying the correctness of the solution to the word problem”) were all of average level.

*Al-Aboudi (2006)* also conducted a study aimed at identifying the difficulties of solving word problems in mathematics among fifth-grade primary school students from the point of view of their teachers. The study population consisted of all fifth-grade mathematics teachers in government primary schools (males and females) in the center of Najaf Governorate. They numbered (161) male and female teachers, while the study sample consisted of (66) male and female teachers, including (33) male and (33) female teachers. The study used the questionnaire as a study tool, and reached results, and the most important of which are: the presence of difficulties among fifth-grade primary school students in solving problems that contain more than one arithmetic operation, as well as difficulty in identifying the key words to solve the problem, and other difficulties in solving problems outside the curriculum, and problems which include a number of steps. The results showed no significant difficulties in problems involving addition, subtraction, multiplication, and rounding numbers.

## **2. The Study Problem and Its Questions**

In light of the above, the problem of the study is its attempt to answer the following main question:

What are the difficulties of solving word mathematical problems among fourth-grade students in the second field in the Al-Dakhiliyah Governorate in the Sultanate of Oman?

The following questions stem from it:

- 1) What is the degree of difficulties in solving mathematical word problems among fourth grade students, which is attributed to internal factors among the students?
- 2) What is the degree of difficulties in solving word mathematical problems among fourth grade students, which is attributed to the teacher?
- 3) What is the degree of difficulties in solving mathematical word problems among fourth grade students, which is attributed to the textbook?

4) What is the degree of difficulties in solving word mathematical problems among fourth grade students, which is attributed to the nature of the word mathematical problems?

### 3. Objectives of the Study

This study aimed to:

- 1) Identifying the difficulties of solving word mathematical problems among fourth-grade students in the second field in the Al-Dakhiliyah Governorate in the Sultanate of Oman.
- 2) Providing proposals as solutions to the difficulties facing fourth grade students in solving mathematical word problems.

### 4. The Importance of the Study

- 1) Responding to the modern trends in mathematics education, which recommend paying attention to the topic of solving mathematical word problems.
- 2) This study examines one of the goals of teaching mathematics, which is identifying the difficulties of solving mathematical word problems.
- 3) It can help teachers take these difficulties into account and overcome them when dealing with the subject of solving mathematical word problems.
- 4) It can help those responsible for developing curricula taking into account the results of this study when formulating mathematical word problems.
- 5) It may open the way for educational researchers to conduct studies related to how to overcome the difficulties of solving mathematical word problems.

### 5. The Limitation of the Study

The limitations of the study are as follows:

- 1) Objective limits: It was limited to identifying the difficulties of solving word mathematical problems among fourth-grade students from the point of view of teachers in the second field in the Al-Dakhiliyah Governorate in the Sultanate of Oman.
- 2) Human limitations: It was limited to the teachers of the second field in the Al Dakhiliyah Governorate in the Sultanate of Oman.
- 3) Spatial limitations: It was limited to the Al Dakhiliyah Governorate in the Sultanate of Oman.
- 4) Time limitations: It was conducted in the first semester of the academic year 2023-2024.

### 6. Terminology of Study

Abdul Qader (2013) defined difficulty as a collection of obstacles that hinder solving a word problem. The researcher defines it operationally as “the things that hinder the student from reaching a solution to the word mathematical problem.”

Aqilan (2000), Al-Sultani (2002), Abdel-Hadi and others (2002), Abu Zeina

(2011) defined the mathematical word problem as: “a new and distinct situation that confronts the learner, and does not have a ready solution for the learner at this time,” and (Badawi, 2003) defines it as “a situation that challenging and requires thinking and taking action to reach the solution.”

The researcher defined it operationally as: “A situation that the learner faces for the first time and willing to solve it, but he does not have yet the solution method, so he thinks about it to reach the solution.”

### **6.1. Study Population and Sample**

All the teachers for grade 4 are females in Oman. Therefore, the study population consisted of all female teachers of the first year of the second field in the first cycle schools in the Al Dakhiliyah Governorate in the Sultanate of Oman, whose number reached (650) teachers, according to the information from the Department of Educational Planning and Information in the General Directorate of Education in the Al Dakhiliyah Governorate for the academic year 2023-2024.

A random sample of (107) female teachers were taken from the study population, i.e. (16.46%) of the study population.

### **6.2. Study Instrument**

In order to achieve the objectives of the study, the researchers prepared the study instrument with the aim of revealing the difficulties of solving mathematical word problems among fourth-grade students in the Al-Dakhiliyah Governorate in the Oman.

The questionnaire consisted of four sections: difficulties related to students' internal factors among students, difficulties related to the teacher, difficulties related to textbooks, and difficulties related to the nature of word mathematical problems. Each section includes six items, so the entire questionnaire consisted of (24) questions.

### **6.3. Validity and Reliability of the Tool**

The validity of the scale for detecting difficulties in solving word mathematical problems verified by presenting it to a group of experienced and specialized referees, in order to get their opinions and comments, in terms of:

- Correct linguistic formulation of expressions.
- Add or delete other phrases they deem appropriate related to the subject of the study.

After receiving their comments, the wording of some items was modified, and the scale was fixed as it was, such as the number of sections and the number of items.

After receiving their comments, the wording of some items was modified, and the scale was fixed accordingly.

The scale was designed by the researchers through Google Drive, distributed

to teachers, and filled out through social media.

To ensure the stability of the scale, the researchers calculated the Cronbach's alpha coefficient for the scale's sections, using the SPSS program. The scale's reliability coefficient reached (0.866), which is a high value and educationally acceptable for the purposes of the study.

To calculate the internal consistency of the scale, a sample of the responses of the second field teacher was taken and Pearson correlation coefficient between each question and the section to which it belongs was obtained. **Table 1** displays the correlation coefficients.

**Table 1.** Pearson correlation coefficient between each item and the section to which it belongs.

Sections	Questions	Correlation coefficient
The first sections (difficulties related to students' internal factors)	1	0.635
	2	0.734
	3	0.636
	4	0.723
	5	0.782
	6	0.689
The second section (difficulties related to the teacher)	1	0.699
	2	0.745
	3	0.665
	4	0.732
	5	0.751
	6	0.774
The third section (Difficulties related to the textbooks)	1	0.668
	2	0.649
	3	0.723
	4	0.779
	5	0.753
	6	0.727
Fourth section (Difficulties related to the nature of the word problems).	1	0.716
	2	0.742
	3	0.846
	4	0.725
	5	0.676
	6	0.760

**Table 2.** The correlation coefficients between the sections and overall sum of the sections.

s	Sections	Correlation coefficient
1	Difficulties related to students	0.620
2	Difficulties related to teachers	0.687
3	Difficulties related to the textbooks	0.711
4	Difficulties related to the nature of the word problems	0.709

**Table 2** shows the correlation coefficient between the items and their sections. The minimum correlation coefficient is 0.635 and maximum value is 0.846 which are good as the acceptable corrected item-total correlations are 0.2 to 0.4 (Hobart & Cano, 2009). Also, the correlation coefficients between the sections and overall sum of the sections range between 0.62 and 0.709 which are above the acceptable range. Thus, the study instrument has a good degree of validity, which indicates the suitability of the instrument for what it was designed to measure.

#### 6.4. Statistical Treatments

The researchers used the Statistical Package for the Social Sciences (SPSS) to analyze the research data and answer their questions. Correlation coefficients, frequencies, percentages, and arithmetic averages were used to measure of the difficulties of solving word mathematical problems among fourth-grade students in the Al Dakhiliyah Governorate in the Sultanate of Oman.

#### 6.5. Results

A five-point Likert scale was used to judge the responses of the teachers, where each item corresponds to five options as follows: strongly agree (5), agree (4), Neutral (3), disagree (2), and strongly disagree (1).

In addition, the following criterion for interpreting the results is used: The range ( $5 - 1 = 4$ ) was calculated and then divided by the largest value in the scale to obtain the length of the interval, i.e. ( $5 \div 4 = 0.5$ ) and then this value was added to the lowest bound of each interval in order to determine the upper limit of this cell, and **Table 3** displays this.

**Table 3.** The upper and lower bounds of 5-point Likert scale.

The average	Degree of consent
1 - 1.8	Very little
1.8 - 2.6	Little
2.6 - 3.4	Medium
3.4 - 4.2	Large
4.2 - 5	Very Large

Appropriate statistical analyses were conducted with the aim of answering the study's questions, analyzing and discussing the results, and seeking interpretation in light of the available theoretical framework, previous studies, and the researchers' personal experience.

## 7. Results of the Main Question

The main study's question is "What is the degree of difficulty in solving word mathematical problems among fourth-grade students in the second field in the Al-Dakhiliyah Governorate in the Sultanate of Oman?". To answer this question, the sub-questions must be answered, as follows:

The first study question says "What is the degree of difficulty in solving mathematical word problems among fourth-grade students, which is attributed to the students' internal factors?" To answer this question, the arithmetic mean, the standard deviation, and the degree of difficulties in solving the word mathematical problem that are attributed to internal factors among the students were calculated for each question of each section, and **Table 4** gives the details.

**Table 4.** Averages, standard deviations and degree of difficulties of solving word mathematical problems attributes to students' internal factors.

Number of question	Order	The questions	Mean	Standard deviation	Degree of difficulties
1	1	Poor level of reading comprehension.	4.38	0.719	Very Large
2	5	Poor understanding of mathematics concepts.	3.86	0.718	Large
3	3	Poor level of representation (translation) of the word mathematical problem.	4.18	0.656	Large
4	2	Weak ability to apply the four steps to solving a problem: understand, plan, solve, and verify	4.20	0.679	Very Large
5	4	Low inferential ability.	4.01	0.739	Large
6	6	Loss of motivation.	3.37	1.036	Large
		Overall mean	4.01	0.53003	Large

The results shown in **Table 4** indicate that the degree of difficulties in solving word mathematical problems among fourth grade students, which is attributed to the students' internal factors, was to a large degree, as the overall average reached (4.01), and the averages for the items ranged between (4.38) for the item Poor level of reading comprehension and (3.37) for the item "Loss of motivation." The other items are as follows; two items of "very large" degree and 4 items of "large" degree.

It is noted that the items whose scores were very large are the basis for dealing with and solving word problems. Reading and understanding the problem is one of the most important matters to extract the given information and the required question to be solved. Also, lack of practice on the scientific steps is an important factor to have difficulties in solving word problems.

The second study question says: “What is the degree of difficulty in solving mathematical word problems among fourth-grade students, which is attributed to the teacher?”

To answer this question, the arithmetic mean, the standard deviation, and the degree of difficulty in solving the word mathematical problem attributed to the teacher were calculated for each item in the section, and **Table 5** provides the details.

**Table 5.** Means, standard deviations and degree of difficulties when solving word mathematical problems attributes to the teachers.

Number of question	Order	The questions	Mean	Standard deviation	Degree of difficulties
7	5	The teacher’s neglect the word mathematical problem-solving skills.	3.09	0.92	Medium
8	2	Lack of training for students to use visual representations for word mathematical problems	3.39	0.89	Medium
9	1	Limiting to modeling the solution.	3.47	0.93	Large
10	4	Forgetting effective teaching strategies in teaching word problems, such as: problem solving, cooperative learning, reflective teaching, and keywords for analyzing tasks.	3.37	0.94	Medium
11	6	Neglecting explaining difficult words and vocabulary included in the problem.	3.02	1.1	Medium
12	3	Neglecting training students to think aloud and use appropriate solution plans.	3.37	0.99	Medium
Overall mean			3.29	0.70	Medium

The results shown in **Table 5** indicate that the degree of difficulties in solving word mathematical problems among the fourth grade students, which was attributed to the teacher, was moderate, as the overall average reached (3.29), and the averages for the items ranged between (3.47) for the item “Limiting it to modeling the solution.” and (3.02) for the item “Neglecting to explain the difficult words and vocabulary mentioned in the problem.”

The results also show large degree of difficulty (one item) and to a moderate degree (five items). It is noted that all the items with high scores or close to high are not used by the teachers. This may be because the teacher does not have enough time due to the intensity of the curriculum and the density of students in classes, and also the presence of reading weakness and weakness in the basics of the subject among some students.

The third study question says: “What is the degree of difficulties in solving mathematical word problems among fourth-grade students, which is attributed to the textbook?”

To answer this question, the arithmetic mean, the standard deviation, and the degree of difficulty in solving the word mathematical problem attributed to the textbook were calculated for each item of each section, and **Table 6** displays the details.

**Table 6.** Arithmetic means, standard deviations, degree of difficulties when solving word mathematical problems attributes to the textbooks.

Number of question	Order	The questions	Mean	Standard deviation	Degree of difficulties
13	5	Lack of use of games when teaching word problems	3.30	0.916	Medium
14	3	Not relying on the vertical and horizontal sequence and connection method based on meaning and understanding	3.68	0.869	Large
15	1	Lack of remedial exercise.	3.78	0.895	Large
16	2	Failure to take into account suspense and attraction when presenting word problems.	3.69	0.880	Large
17	6	Failure to link word problems to realistic applications from the students' environment.	3.29	1.109	Medium
18		Word problems ignore one or more of the following dimensions: number concepts, number operations, algorithms, geometric concepts and geometric applications.	3.55	0.873	Large
Overall mean			3.54	0.663	Medium

The results shown in **Table 6** indicate moderate difficulties in solving word mathematical problems among fourth grade students, which are attributed to the textbook as the overall average is (3.54), and the averages for the items ranged from (3.78) for the item “Lack of remedial exercise.” to (3.29) for the item “Not linking word problems to realistic applications from the students' environment.” The other items show large degree (four items) and moderate de-

gree (two items).

It is noted that the items that were of very large difficult may not be sufficiently available in the curriculum, in order to present the problems in an interesting way, especially since the students are young and need suspense and attraction when presenting word problems, as well as the lack of remedial exercises in the book.

As for the items whose degree of difficulty was moderate, the curriculum is originally based on linking to the student's real life, and there are committees in the curriculum that adapt examples to suit the Omani environment. Also, the means that help achieve the objectives of the curriculum are available, especially in first-year schools, and teachers apply active learning strategies which is suitable for solving word problems.

The fourth study question says: "What is the degree of difficulty in solving mathematical word problems among fourth-grade students, which is attributed to the nature of the word mathematical problems?"

To answer this question, the arithmetic mean, the standard deviation, and the degree of difficulties in solving the word mathematical problem, which are attributed to the nature of the mathematical problems, were calculated for each item in the section, and **Table 7** summarizes the results:

**Table 7.** Arithmetic means, standard deviations, degree of difficulties when solving word mathematical problems attributes to the nature of the word problems.

Number of question	Order	The questions	Mean	Standard deviation	Degree of difficulties
19	5	Many steps in the word problem.	3.54	1.009	Large
20	2	The presence of excess information.	3.59	0.995	Large
21	4	Placing the numbers in the problem in order other than the order required by the solution.	3.56	0.845	Large
22	1	Difficulty of determining what is required in the problem.	3.60	0.970	Large
23	6	Lack of participation of Arabic language specialists in formulating word problems.	3.51	0.938	Large
24	3	Difficulty of solving in more than one way.	3.59	0.883	Large
		Overall mean	3.56	0.698	Large

The results shown in **Table 7** indicate that the degree of difficulties in solving word mathematical problems among fourth grade students, which is attributed to the nature of the word mathematical problems, was to a large degree, as the general average reached (3.56), and the averages for the items ranged between

(3.60) for the question “It is difficult to determine what is required in the problem.” And (3.51) for the question “The lack of participation of Arabic language specialists in formulating word problems”. All the items in this section were given rate of great difficulty.

It is noted that the items in this section were arranged from (1 - 3), because students actually find it difficult to define what is required, which is the basic pillar of formulating a solution plan, or at least thinking about the solution plan, and it is also difficult for them to reach more than one solution method, as well as When the problem includes additional information, the young age of the students may consider this additional information as distractions. As for the last three items in the order, the word problems in this grade may be short, as many steps in the solution do not appear, and Arabic language specialists are not needed to help formulate it.

## 8. Recommendations

- 1) Integration between Arabic language teachers and mathematics teachers, to address students’ reading weakness.
- 2) Training students on the steps of the scientific method to solve word problems.
- 3) Training students to use graphical representations of word mathematical problems.
- 4) Mathematics textbooks include a set of remedial exercises.
- 5) The curricula take into account the elements of suspense and attraction when presenting word mathematical problems.
- 6) Training students to know and determine what is required of word mathematical problems.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- Abdel-Hadi, N., Abdel Salam, H., & Abu Al-Rub, Y. (2002). *Methods of Teaching Mathematics and Science*. Dar Safaa for Publishing and Distribution.
- Abdel-Wahab, A. N. A., & Abu Sitta, F. A. (2008). The Impact of Training Based on Integration between Cognitive Strategies and Metacognitive Strategies on Developing Word Problem-Solving Skills among Students with Learning Difficulties in Mathematics at the Primary Stage. *Journal of Psychological and Educational Research*, 23, No. 1.
- Abdul Qader, K. F. (2013). Difficulties in Solving Word Problems in Mathematics among Sixth Grade Students in the Gaza Governorates from the Teachers’ Point of View. *Al-Aqsa University Journal*, 17, 1-10.
- Abu Sal, M. A. K. (2000). *Mathematics Curricula and Teaching Methods*. Dar Al-Furqan Library.
- Abu Zeina, F. K. (2011). *School Mathematics Curricula and Teaching* (pp. 15-26). Al-Falah

Library.

- Acosta-Tello, E. (2010). Making Mathematics Word Problems Reliable Measures of Student Mathematics Abilities. *Journal of Mathematics Education*, 3, No. 1.
- Al-Aboudi, A. H. (2006). Difficulties in Solving Word Problems in Mathematics among Fifth-Grade Primary School Students from Their Teachers' Point of View 2. *Journal of Human Sciences*.
- Al-Amer, H. (2009). *The Theory of Creative Solution to Problems*. TRIZ, Debono Publishing and Distribution.
- Al-Arini, H. (2017). Difficulties in Solving Word Mathematical Problems among Primary School Students from the Teachers' Point of View. *Journal of Educational Sciences*, 2, 183-231.
- Al-Balawi, A. B. A. (2007). *The Effect of Using the Problem-Solving Method in Developing the Skills of Solving Applied Maximum Value Unit Problems among Third-Year Secondary School Students*. Master's Thesis, King Saud University.
- Al-Bashiti, H. M. (2007). *The Effect of Using Multiple Methods in Developing and Retaining Problem-Solving Skills among Fifth-Grade Female Students*. Master's Thesis, Islamic University of Gaza.
- Al-Maqoushi, A. A. R. (2001). *Psychological Foundations of Learning and Teaching Mathematics—Contemporary Methods and Theories* (2nd ed). King Fahd National Library.
- Al-Nadhir, M., Khashan, K., & Al-Salouli, M. (2012). *Effective Strategies in Solving Mathematical Problems (Applications to the Basic Education Stage)*. Center of Research Excellence in Developing Science and Mathematics Education at King Saud University.
- Al-Salami, T. (2013). *The Degree of Mathematics Teachers' Contribution to Developing Mathematical Problem-Solving Skills among Primary School Students*. Master's Thesis, Umm Al-Qura University.
- Al-Sultani, A. H. (2002). *Methods of Teaching Mathematics*. Al-Warraq Publishing and Distribution.
- Al-Thabiti, F. (2011). *Identifying the Difficulties of Solving Word Mathematical Problems among Fourth-Grade Primary School Girls from the Perspective of Mathematics Teachers and Supervisors in the City of Taif*. Master's Thesis, Umm Al-Qura University in Mecca.
- Aqilan, I. (2000). *Mathematics Curricula and Teaching Methods*. Amman, Dar Al-Masirah.
- Badawi, R. (2003). *Strategies in Teaching and Evaluating Mathematics*. Dar Al-Fikr.
- Badawi, R. M. (2019). *Strategies in Teaching and Evaluating Learning Mathematics* (2nd ed.). Dar Al-Fikr.
- Barbu, O. (2010). *Mathematics Word Problems Solving by English Language Learners and Web Based Tutoring System*. Master's Thesis, The University of Arizona.
- Bernadette, E. (2009). *Third Grade Students Challenges and Strategies to Solving Mathematical Word Problems*. Master's Thesis, The University of Texas at El Paso.
- Ester, P., Morales, L., Moraleda, A., & Bermejo, V. (2021). The Word Component of Mathematical Problem—Solving in Bilingual Contexts by Early Elementary Schoolers. *Mathematics*, 9, Article 564. <https://doi.org/10.3390/math9050564>
- Hobart, J., & Cano, S. (2009). Improving the Evaluation of Therapeutic Interventions in Multiple Sclerosis: The Role of New Psychometric Methods. *Health Technology Assessment*, 13, 1-177. <https://doi.org/10.3310/hta13120>

- Jabr, M. H., Fawara, A., & Al-Titi, M. (2011). *The Extent of Compatibility of the Geometry Content in Mathematics Textbooks for the Lower Basic Stage in Palestine with the Standards of (2000) (NCTM), the Second Educational Conference*.  
<https://www.linkedin.com/shareArticle?url=https://www.maannews.net/news/389778>
- Muhammad, M. M. (2007). Children's Difficulties in Mathematics in the City of Ibb in Yemen. *Journal of the College of Education at Al-Mustansiriya University*, 409-430.
- NCTM (2000). *National Council of Teachers of Mathematics Curriculum and Education Standards for School Mathematics Reston VA: The Council*.
- Rasras, H. (2007). *A Proposed Program for Treating Common Errors in Solving Mathematical Problems among Students in the First Year of Literary Secondary School in Gaza*. Master's Thesis, Islamic University.
- Shabir, I. (2011). *The Effect of a Problem-Solving Strategy in Treating Mathematics Learning Difficulties among Eighth-Grade Students*. Master's Thesis, Al-Azhar University.