DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Learners' Difficulties In Mathematics

Andresa A. Gabutero
STI West Negros University
Bacolod City, Negros Occidental
andresagabutero@gmail.com

Abstract

Studying learners' difficulties in mathematics is necessary to help learners improve their skills and abilities. It will help teachers discover the appropriate techniques and strategies applicable to address the problems experienced by the learners in studying mathematics. In this context, this descriptive study aimed to determine learners' difficulties in mathematics as a basis for a strategic action plan. The needed data were collected from 150 learner-respondents using a researcher-made questionnaire that has undergone rigorous tests of validity and reliability. The ensuing analysis showed learners having a moderate level of difficulty in Learning Mathematics across all areas of cognitive factors, emotional factors, instructional factors, and environmental factors. Subsequent analysis also showed no significant difference in the level of learners' difficulties in mathematics when analyzed in terms of emotional factors and instructional factors according to variable sex, size of the family, and average family income. It showed a significant difference in the level of learners' difficulties in mathematics when analyzed in terms of cognitive factors and environmental factors according to the variable sex. The comparative analysis concluded that the variable sex in terms of cognitive factors and ecological factors was greatly affected in this study. This is because, regardless of sex, students find it hard to comprehend mathematical concepts, and most learners love learning in peaceful and well–managed classrooms. The result of this study calls for allocating resources, comprehensive training for mathematics teachers, and developing programs that aid students with difficulties in mathematics.

Keywords: Mathematics, learners' difficulties, cognitive factors, emotional factors, instructional factors, environmental factors, strategic action plan.

Bio-notes:

Andresa A. Gabutero holds a degree in MAED, majoring in Mathematics, and serves as Teacher II of Quezon National High School. Her research interest is in addressing the learners' difficulties in mathematics.

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Introduction

Rationale

"Mathematics is difficult" is heard mostly by young students nowadays. Learning this subject requires interest and skill to embrace its contents, but most of the students find it challenging to understand. They find math to be a tricky subject. As observed during the resumption of limited face–to–face classes by the Department of Education (Joint Memorandum Circular No. 01, 2021), many of the junior high school students in one of the public schools are struggling in solving operations of integers, as seen in the result of the conducted annual Electronic – Regional Unified Numeracy Test (E – RUNT). This problem arose after the pandemic hit our country. The modular modality of learning is an enormous challenge to the learners. This is alarming since teachers need to prepare the learners to compete in the real world.

Learners' difficulties in mathematics should be given attention since the result of the conducted numeracy test (E-RUNT) is very poor. Learners' scores were below average; most did not reach 75% of the score, as seen in the annual E–RUNT conducted. This kind of test aims to check whether students have a strong foundation in mathematics since this test is composed only of the operations of integers, which most students struggle to solve. They got confused about how to solve operations involving numbers with positive and negative signs. With this difficulty, students may struggle to analyze the problem, understand the concept, identify the correct solution, establish the equation, and simplify the expression. These are some skills that students should develop, but nowadays, students find it hard to develop them.

The researcher observed the struggles faced by the learners. This motivated the researcher to discover the different hindering factors contributing to the learner's difficulties in learning different mathematical concepts. The valuable insights gained from this study will provide helpful information for constructing a strategic action plan that contains strategies and techniques that can support and provide teachers with an effective way to address the learners' difficulties in mathematics.

Literature Review

Learners' difficulties in mathematics are one of the biggest concerns among teachers because this problem will not only be limited to the classroom but also affect their daily life situations. The study of Jerusalem et al. (2021) states that two factors become reasons for students to have learning difficulties in Mathematics, including mathematical and non-mathematical factors. The mathematical factors that cause students to experience learning difficulties are students' lack of understanding of the concept taught by the teachers, the difficulty of students in carrying out math operations, the difficulty in using math formulas, and the inability to analyze word problems. The non-mathematical factors cause students to have learning difficulties in Mathematics, including the student's lack of focus, not liking Mathematics, considering Mathematics difficult without trying, being embarrassed to ask

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

questions, lack of practice, easily despairing, poor study habits, and too much play with cell phones. These factors are very common to learners, especially in today's generation, where technology plays a vital role in their lives. They focus less on finding accurate solutions to problems that need critical thinking. Instead, they will use their cell phones to do the task.

It is a challenge that requires ongoing attention and intervention from educators, policymakers, and researchers. By addressing foundational skills, improving teaching methods, promoting positive attitudes towards mathematics, and addressing mathematics difficulties, we can help students overcome their difficulties in mathematics and develop the skills and confidence needed to succeed in this field (Velez et al., 2023).

The study of Anteza (2022) focuses on a conducive classroom environment. As stated in this study, the structure of the classroom affects the morale and learning of students. This study also highlights the flexible classroom setting, which refers to spaces wherein learners can choose from different seating or standing options, locations within the learning space, and the size of the group with which to work. It is best to manage the classroom well and allow students to choose their position and location for a healthy learning process.

Artuz (2021), Mathematics is an essential subject in the Philippines Department of Education (DepEd) K-12 curriculum. It requires critical thinking abilities because it is crucial in everyday life and other sciences' growth. However, studies in the context of Filipino students reveal that the majority of students excel only in knowledge acquisition but are considerably low in understanding concepts, which requires the use of their higher-order thinking skills (HOTS). This poor mathematics performance is evident in local, regional, national, and even international comparisons such as the National Achievement Test (NAT), the Third International Mathematics and Science Study (TIMSS), and even the recent Programme for International Student Assessment (PISA) results and among others. These comparisons showed that Filipino students are underachievers in Mathematics. As a result, students' mathematical process abilities, such as critical thinking, must be strengthened.

The math curricula in all schools nowadays were already spiraling. Each year level will learn different branches of mathematics, starting with algebra for the first and second quarters, geometry for the third quarter, and probability during the fourth quarter. Every lesson helps each student have the knowledge and skills needed to learn mathematics. It is to develop and enhance their ability to deal with all the difficulties they may encounter while learning mathematics as they move to a higher level of their studies.

Theoretical Underpinnings

This study was anchored on the Difficulty Theory developed by David Perkins, as described in his paper "The Difficulty Theory" (Perkins, 2007), which suggests valuable ideas to address students' difficulties in particular subject areas. In unfolding learners' difficulties in

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

mathematics, it is best to connect all the necessary information needed to overcome these issues. By incorporating Perkins' theory into this field, we can gain more knowledge and techniques to overcome the challenges that learners encounter in mathematics and provide appropriate solutions to the problem.Perkins' Difficulty Theory identifies the several kinds of conceptual challenges students could face. This covers issues with tacit knowledge, passive knowledge, ritualized knowledge, and knowledge that is too unfamiliar for students to interact with. As facilitators of instruction, teachers can identify these issues and introduce some instructional activities and motivation that encourage the learners to learn using Perkins' approach.

The researcher intended to focus on determining the learners' difficulty in mathematics, which also includes different areas of concern like environmental factors, emotional factors, instructional factors, and cognitive factors that may affect their way of learning. This study will serve as a tool for identifying the difficulties needed to make a strategic action plan to help address the problem.

Objectives

This study aimed to determine learners' difficulties in Mathematics in one of the public schools during the School Year 2023-2024. Specifically, this study sought to determine 1) the level of learners' difficulties in mathematics according to cognitive, emotional, instructional, and environmental factors and 2) if there is a significant difference in the level of learners' difficulties in mathematics when grouped and compared according to the aforementioned factors.

Methodology

This chapter presents the research design, respondents of the study, and data-gathering instruments, which include the validity and reliability of the conducted research, the data-gathering procedures, ethical considerations, and data analysis and statistical treatment.

Research Design

This study used a quantitative method and descriptive design to determine the difficulty level of grade 8 learners in mathematics, which was the basis for a strategic action plan. This was conducted in three public junior high schools in San Carlos City, Negros Occidental. This method collects data on how many students have mathematics difficulties. Generally, quantitative research is based on the positivist paradigm, which argues for techniques based on statistical breakdown and includes additional tactics such as inferential statistics, hypothesis testing, mathematical exposition, and surveys with a limited number of predetermined responses, according to Adedoyin (2020).

Respondents

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

This paper used random sampling through the Cochran formula to determine the study respondents from Junior High School Students who have an average math grade of below 80 from the three public schools for the SY 2023-2024 (N = 150; n = 109).

Instrument

The researcher-made survey questionnaire covered 40 items focused on four areas: Cognitive factors, Emotional factors, Instructional factors, and Environmental factors. Each item was rated on a scale of 1 to 5, using a 5 – 5-point Likert scale with five as always, four as often, three as sometimes, two as rarely, and one as seldom. Respondents were asked to check the box containing the scale of their responses in every item.

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Procedures for Data Collection

After the approval of the questionnaire by the panel members, including its validity and reliability, the researcher asked permission from the professor to start conducting the instrument on the target respondents. The researcher provided a letter to the Schools Division Superintendent, the Public Schools District Supervisors, and then the principal of the three public schools included in the study, allowing her to research on the campus. After permission, the researcher provided a letter of assent to the students and a letter of consent to the parents involved in the study. The researcher administered and retrieved the instrument to ensure 100% retrieval. The researcher checked the respondents' answers for confidentiality and credibility.

Data Analysis and Statistical Treatment

Objective 1 used the descriptive analytical scheme and mean as a statistical tool to determine the level of learners' mathematics difficulties according to the cognitive, emotional, instructional, and environmental factors. Objective 2 used a comparative analytical scheme and Mann-Whitney U test to determine the significant difference in the level of learners' difficulties in mathematics when grouped and compared according to the aforementioned variables.

Ethical Considerations

This study adheres to the standard ethical considerations or principles that guide researchers and human subjects, especially regarding research participants' rights, enhance research validity, and maintain the integrity of the study. All respondents provided informed assent and consent, and their privacy was respected during the survey. Every respondent was free to leave the study at any moment without penalty. The respondents were informed of the study's risks and advantages and were informed of any possible harm. The data collected was used only for this study and was kept secure and confidential.

Results and Discussions

This chapter presents the data gathered from the survey, which was analyzed and interpreted according to the study's objectives.

Learners' Difficulties in Mathematics According to Four Factors

Table 1
Level of Learners' Difficulties in Mathematics According to Cognitive Factors

Cognitive factors Items	Mean	Interpretation
As a learner, I have difficulty in …		

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

1. mastering mathematical concept that requires the application of real-life situations.	3.36	Moderate Level
2. Familiarize yourself with the mathematical formula to solve the given expression/ equation.	3.45	Moderate Level
3. learning mathematical concepts after every discussion of the lesson.	3.33	Moderate Level
4. recalling the background knowledge in mathematics.	3.52	High Level
5. Applying the rules of signs to solve complex math operations.	3.52	High Level
6. Analyzing mathematical word problems.	3.63	High Level
7. Dealing with strenuous mathematical classroom activities given by our teacher.	3.41	Moderate Level
8. memorizing the rules of basic math operations such as addition, subtraction, multiplication, and division.	3.56	High Level
9. Processing math lessons, especially in problem-solving, such as translating word clues into mathematical constructs.	3.37	Moderate Level
10. remembering the steps/techniques used to solve mathematical problems after every discussion.	3.46	Moderate Level
Overall Mean	**3.46**	**Moderate Level**

Table 1 discusses the level of learners' difficulties in Mathematics in curriculum cognitive factors. As revealed, an overall mean score of 3.46 was considered moderate. The lowest mean score of 3.33 on item number 3 was about learning mathematical concepts after every lesson discussion, interpreted as moderate level. In contrast, the highest mean score of 3.63 was interpreted as a high level on item 6, which was about analyzing mathematical word problems. The result implies that the respondents had difficulties analyzing mathematical word problems but less difficulty learning mathematical concepts after discussion. Jerusalem et al. (2021), whose research highlights the students' difficulty in analyzing word problems and the lack of understanding of the mathematical concept. As observed in the classroom, most of the students failed in determining the process to solve a particular problem, like solving problems involving algebra; they cannot familiarize the steps being presented in class, resulting in their difficulty in dealing with the given activity.

Table 2
Level of Learners' Difficulties in Mathematics According to Emotional Factors

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Emotional factors Items	Mean	Interpretation
As a learner, I have difficulty in …		
1. learning mathematics when it comes along with another task to do.	3.29	Moderate Level
2. expressing my thoughts towards the subject without a reward.	3.07	Moderate Level
3. mastering mathematical concepts when I am frustrated.	2.90	Moderate Level
4. participating in group activities, particularly in mathematics, when my groupmates would not consider my ideas.	3.43	Moderate Level
5. I understand mathematical discussion when my parents reprimand me, break ties with my closest friend, and become heartbroken.	3.09	Moderate Level
6. sharing mathematical ideas when I am hungry and do not have enough time to sleep or am not sure of my answer.	2.94	Moderate Level
7. cooperating in group activities when my groupmates are not attentive to the task.	3.37	Moderate Level
8. accepting failure, particularly in Math test results.	3.80	High Level
9. doing mathematical tasks with peers because I prefer to do the task alone.	3.36	Moderate Level
10. attending any mathematical competition because of the fear of losing and being humiliated.	2.75	Moderate Level
Overall Mean	**3.20**	**Moderate Level**

Table 2 reveals the level of learners' difficulties in mathematics in the emotional factors curriculum. There was an overall mean score of 3.20, interpreted as a moderate level. The lowest mean score of 2.75, interpreted as a moderate level on item 10, was about "attending any mathematical competition because of the fear of losing and being humiliated." Meanwhile, the highest mean score of 3.80, interpreted as a high level on item 8, was about accepting failure, particularly in the Math test results. The result implies that learners' difficulties in mathematics, according to emotional factors, were more due to receiving the failure of their math test results. Learners really strive hard to answer every given math test correctly, but it cannot guarantee that they will get a passing score. Mangarin & Caballes (2024), whose study determines emotional factors that affect students' learning ability. As stated in this study, the students who have math anxiety lack focus in learning mathematics, which will lead to poor performance. Students who perform poorly in mathematics are prone to failing the test.

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Table 3
Level of Learners' Difficulties in Mathematics According to Instructional Factors

Instructional factors Items	Mean	Interpretation
As a learner, I have difficulty in …		
1. Exploring mathematics without using online applications like Photo Math, Mathway, and Geogebra.	3.21	Moderate Level
2. learning mathematics without using mathematical tools like a calculator, abacus, or other related resources.	3.27	Moderate Level
3. Studying mathematics if not applied to real-life situations.	3.30	Moderate Level
4. learning math concepts in a short time.	3.52	High Level
5. Answer math activities without the guidance of my teacher.	3.38	Moderate Level
6. Applying math concepts in group activities because I cannot express my thoughts without digital support.	3.09	Moderate Level
7. learning math lessons without books and modules.	3.39	Moderate Level
8. comprehending complex mathematical terms.	3.28	Moderate Level
9. Collecting and gathering enough data to use in solving math problems.	3.48	Moderate Level
10. catching up on the topic discussed by my teacher, particularly in math, without the help of my parents.	3.28	Moderate Level
Overall Mean	**3.32**	**Moderate Level**

Table 3 presents the level of learners' difficulties in mathematics in curriculum instructional factors. As a result, an overall mean score of 3.32 was interpreted as a moderate level. The lowest mean score of 3.09, interpreted as a moderate level on item 6, was about "applying math concepts in group activities because I cannot express my thoughts without digital support." In contrast, the highest mean score of 3.52, interpreted as a high level on item 4, was about "learning math concepts in a short period." The result implies that learners experience a high level of learning difficulties in mathematics according to instructional factors, specifically in learning math concepts in a short period of time. Introducing mathematics to students requires time because some students cannot understand the concept easily. Guner (2020), highlighting teachers', content–based, and student–based difficulties. These three difficulties stated in his study emphasized that mathematics should be taught with enough time because students cannot

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

learn mathematics quickly. There were lots of formulas and rules to familiarize the students. Students need more time to absorb the discussion.

Table 4
Level of Learners' Difficulties in Mathematics According to Environmental Factors

Environmental factors Items	Mean	Interpretation
As a learner, I have difficulty in …		
1. learning mathematics when the classroom is crowded.	3.38	Moderate Level
2. studying mathematics in a noisy environment.	3.06	Moderate Level
3. learning in a not well–ventilated classroom.	3.26	Moderate Level
4. Studying mathematics at home, where nobody can assist me.	3.06	Moderate Level
5. learning mathematics when my classmates are playing.	3.08	Moderate Level
6. I am doing my math assignment at home because my parents did not allow me.	2.79	Moderate Level
7. We are performing research because our school library has limited mathematical materials.	3.19	Moderate Level
8. Enhancing my mathematical skills because our school does not initiate numeracy activities and programs.	3.04	Moderate Level
9. Review my math lesson because I am addicted to online games, such as mobile legends and Minecraft, instead of studying.	3.14	Moderate Level
10. learning mathematics because my family does not support me in my studies.	2.68	Moderate Level
Overall Mean	**3.07**	**Moderate Level**

Table 4 introduced the level of learners' difficulties in mathematics in curriculum environmental factors. The overall mean was 3.07, interpreted as a moderate level. The lowest mean score of 2.68, interpreted as a moderate level on item number 10, was about "learning mathematics because my family does not support me in my study," while the highest mean score of 3.38, interpreted as moderate level on item number 1, was about "learning mathematics when the classroom is crowded." This result implies that the level of learners' difficulties in mathematics according to environmental factors is learning mathematics when the classroom is crowded. Indeed, crowded environments also contribute to difficulty in learning, specifically in learning mathematics.

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Kurniawan et al. (2022), which emphasized the influence of school environment on student learning. The school environment must be friendly and free from distractions that hinder students' ability to think creatively and productively. Classrooms must be spacious enough for the students to interact without any discomfort.

Comparative Analysis of the Level of Learners' Difficulties in Mathematics in Four Factors and the Variables

Table 5

Difference in the Level of Learners' Difficulties in Mathematics in Cognitive factors when grouped and compared according to the variables above

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Sex	Male	58	60.60	1154.000	0.048	0.05	Significant
	Female	51	48.63				
Size of the Family	Small	58	56.50	1392.000	0.597		Not Significant
	Big	51	53.29				
Average Family Monthly Income	Lower	81	57.90	899.000	0.103		Not Significant
	Higher	28	46.61				

Table 5 reveals a significant difference in the level of learners' difficulties in mathematics in cognitive factors when grouped and compared according to the variable sex, with a p-value of 0.048, which is less than the 0.05 significance level. Therefore, the null hypothesis that states there is no significant difference in the Level of Learners' Difficulties in Mathematics in Cognitive factors when grouped and compared by variable sex was rejected.

Sex is significant when grouped and compared to the variable of cognitive factors. It is evident in the classroom that students' eagerness to learn differs by sex because the most participative students were females. However, it does not mean that males did not participate; they also attended but were very passive, or only a few of them were willing to participate in class activities. Most males depended on females, especially when doing a group activity. They shared their ideas, but most of the tasks were done by the females – from answering to reporting in front of the class. Regarding class recitation, males depend only on what they have read in books and modules, while females like to extend their explanations to support their ideas.

The result is affirmed in the study Leder (2019), which highlights the differences between males and females in learning mathematics. As stated in this study, females have higher performance results than males. However, it was suggested that schools should implement

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

programs and procedures to improve teaching mathematics, wherein all the students should learn and excel regardless of gender.

Table 6
Difference in the Level of Learners' Difficulties in Mathematics in Emotional factors when grouped and compared according to the variables above

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Sex	Male	58	58.04	1302.500	0.283	0.05	Not Significant
	Female	51	51.54				
Size of the Family	Small	58	51.72	1288.500	0.247		Not Significant
	Big	51	58.74				
Average Family Monthly Income	Lower	81	55.51				
	Higher	28	53.54	1093.000	0.776		Not Significant

Table 6 shows no significant difference in the level of learners' difficulties in mathematics in emotional factors when grouped and compared according to the variables sex, size of the family, and average family monthly income. Therefore, the null hypothesis that states there is no significant difference in the Level of Learners' Difficulties in Mathematics when grouped and compared according to the variables was accepted.

This implies that the learners' difficulties in emotional factors do not vary according to the variables mentioned. It also means that the aforementioned variables are not the factors to consider in determining learners' difficulties in mathematics regarding emotional factors. Hence, learners' difficulties in mathematics do not vary regardless of their sex, the size of the family, and the average family monthly income as far as the emotional factors are concerned.

This is supported by the study of Laranang & Bondoc (2020), which highlights the attitude of the students towards mathematics. The student's choice is to develop positive or negative attitudes in learning mathematics, but this study suggests that students should develop positive attitudes to perform well. Despite students' feelings about mathematics, it is the duty and responsibility of the teacher to find concrete solutions to every difficulty that hinders the interest and cooperation of the learners in exploring mathematics. Applying diversified methods in classroom instruction will help enlighten the mixed feelings of the learners in dealing with mathematical concepts.

Table 7
Difference in the Level of Learners' Difficulties in Mathematics in Instructional factors when grouped and compared according to the variables above

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Sex	Male	58	59.42	1222.500	0.119	0.05	Not Significant
	Female	51	49.97				
Size of the Family	Small	58	54.97	1477.000	0.990		Not Significant
	Big	51	55.04				
Average Family Monthly Income	Lower	81	57.01	971.000	0.257		Not Significant
	Higher	28	49.18				

Table 7 shows no significant difference in the level of learners' difficulties in mathematics in instructional factors when grouped and compared according to the variables sex, size of the family, and average family monthly income. Therefore, the null hypothesis that states there is no significant difference in the Level of Learners' Difficulties in Mathematics when grouped and compared according to the variables was accepted.

This implies that the learners' difficulties in instructional factors do not vary according to the variables mentioned. It also means that the variables above are not the factors to consider in determining learners' difficulties in mathematics in terms of instructional factors. Hence, learners' difficulties in mathematics do not vary regardless of their sex, the size of the family, and the average family monthly income as far as the instructional factors are concerned.

It was supported by the study of Iwuanyanwu (2021), which highlights the importance of teacher-teaching approaches to the comprehension and understanding of learners in mathematics. As observed in class, when the teacher uses instructional materials while discussing the lesson, students will listen and participate in the discussion. Their eagerness to learn came alive, and they were very active in raising their hands to answer the activity. The class becomes lively and productive. Thus, it is necessary to apply instructional materials to get the students' attention in class and obtain their utmost cooperation in the discussion.

Table 8

Difference in the Level of Learners' Difficulties in Mathematics in Environmental factors when grouped and compared according to the variables above

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Sex	Male	58	61.41	1107.500	0.024	0.05	Significant
	Female	51	47.72				
Size of the Family	Small	58	49.34	1151.000	0.046		Not Significant
	Big	51	61.43				

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Average Family Monthly Income	Lower	81	58.44	855.000	0.053	Not Significant
	Higher	28	45.04			

Table 8 reveals a significant difference in the level of learners' difficulties in mathematics in environmental factors when grouped and compared according to the variable sex with with a p-value of 0.024, which is less than the 0.05 level of significance. Therefore, the null hypothesis that states there is no significant difference in the Level of Learners' Difficulties in Mathematics in Environmental factors when grouped and compared to the variable sex was rejected.

Sex is significant when grouped and compared to environmental factors. As observed in the classroom, a group of students loved a clean, spacious environment and a well–ventilated classroom; most of them were females, and a few were males. This may be because females were trained at home in cleaning and doing household chores. In contrast, males were trained to work on the farm, as evident in rural areas where there are many farms and mountains, as stated in the study of Brink et al. (2021), which highlights the importance of a conducive classroom for students' learning. Poor classroom lighting conditions, noisy environment, and poor classroom quality negatively influence the quality of learning due to discomfort and impaired mental and physical health of students. While most of the male learners were not attentive to the classroom environment, it does not guarantee that they acquire better knowledge in a crowded classroom. They also want a peaceful place to learn and internalize the class discussion.

Conclusion

The following conclusions were drawn based on the study's findings and revealed a distinct learner profile. Most respondents are males who belong to the small size of the family and have lower family monthly income. This suggests a proper intervention and assessment to address learners' difficulties in mathematics. Learners' comprehension skills, especially in learning fundamental foundations of math like the basic operations, analyzing word problems, and even familiarizing themselves with the rules of signs in integers, must improve to lessen students' difficulties in the area of cognitive, emotional, instructional, and environmental factors as they continue learning higher mathematics. Their ability to think creatively and critically must be developed to understand the different mathematics concepts productively since this subject is not limited to classroom instruction but also to daily life application. Teachers' concern for the learners' difficulties in mathematics is highly encouraged, so they should come up with and develop strategies and techniques that are efficient in classroom instruction, specifically in teaching mathematics. One of the teachers' roles in the classroom is to make the learning process meaningful to every learner. Moreover, this study revealed that learners' sex is a significant factor in the level of learners' difficulties in mathematics, as well as cognitive and environmental factors. This suggests students' utmost participation and gives value to classroom activities

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

regardless of their natal sex to make the teaching-learning process in mathematics productive and effective.

Acknowledgment

My deepest gratitude to my panelist for their expertise and constructive feedback, which have been invaluable in refining my work. My heartfelt gratitude to my wonderful husband and beautiful daughter for the love, trust, belief, and support that pushed me hard to continue this journey despite our challenging circumstances. Lastly, I am forever grateful to our Almighty God. His guidance and continued blessings brought me on this journey. Without Him, Our Dear Lord! I cannot stand against all odds that test my ability and capability of pursuing this journey.

Conflict of Interest

The author declares no conflict of interest in any form that has influenced this paper's content or conclusions. She affirmed that no personal, professional, or ideological factors may affect her research work's objectivity or judgment.

References

Adedoyin, B. L. (2020). Quantitative research method. ResearchGate. https://www.researchgate.net/publication/340594619_Quantitative_Research_Method

Anteza, T. K. (2020). "Management of a conducive classroom environment: A meta-synthesis," Management, vol. 11, no.26, pp. 54–70, 2020. https://doi.org/10.7176/JEP/11-26-06

Artuz, J. K. A. & Roble, D. B. (2021). "Developing students' critical thinking skills in mathematics using online-process oriented guided inquiry learning (O-POGIL)," American Journal of Educational Research, vol. 9, no. 7, pp. 404-409,2021. DOI: 10.12691/education-9-7-2

Brink, H.W., Loomans, M.G.L.C., Mobach, M.P., Kort, H.S.M. (2021). Classrooms' indoor environmental conditions affecting the academic achievement of students and teachers in higher education: A systematic literature review. Indoor Air. 2021; 31: 405–425. https://doi.org/10.1111/ina.12745

Guner, N. (2020). Difficulties encountered by high school students in mathematics. International Journal of Educational Methodology, 6(4), 703–713. https://doi.org/10.12973/ijem.6.4.703

Iwuanyanwu, P. N. (2021). Contemporary problems of teaching and learning in mathematics education. Mathematics Teaching Research Journal, 13(2), 23-35. https://www.researchgate.net/publication/353236542

Jerussalem, M.A, et.al. (2021). Students' Learning Difficulties in Mathematics: How Do Teachers Diagnose and How Do Teachers Solve Them? https://doi.org/10.22342/jpm.15.1.10564.23-36

Joint Memorandum Circular No. 01, s. 2021 (2021 September 27).

DOI: https://doi.org/10.56738/issn29603986.geo2025.6.100
ISSN 2960-3986
GEO Academic Journal Vol. 6 No. 1 – 2025 series

Operational Guidelines on the Implementation of Limited Face–to–Face Learning Modality. https://www.deped.gov.ph/wp-content/uploads/2021/09/DEPED-DOH-JMC-No.-01-s.-2021.pdf

Kurniawan, F., Erita, Y., Syahrir, D., & Khairunnisa, V. (2022). The influence of the student's environment on students' learning motivation. Journal of Digital Learning and Distance Education, 1(8), 297-305. http://doi.10.56778/jdlde.v1i7.58

Laranang, J. A. I., & Bondoc, J. M. F. (2020). Attitudes and self-efficacy of students toward mathematics. International Journal of English Literature and Social Sciences, 5(5), 1392–1423. https://doi.org/10.22161/ijels.55.11

Leder, G.C. (2019). Gender and Mathematics Education: An Overview. In: Kaiser, G., Presmeg, N. (eds) Compendium for Early Career Researchers in Mathematics Education. ICME-13 Monographs. Springer, Cham. https://doi.org/10.1007/978-3-030-15636-7_13

Mangarin, R. , & Caballes, D. O.(2024). Difficulties in Learning Mathematics: A Systematic Review. International Journal of Research and Scientific Innovation XI(IX):401405. https://doi.org/10.51244/IJRSI.2024.1109037

Perkins, D. (2007). Theories of difficulty. In N. Entwistle & P. Tomlinson (Eds.), *Student learning and university teaching* (pp. 31–48). British Psychological Society. https://www.researchgate.net/publication/233711015

Velez, A.J. B., Dayaganon, D.G. F., Robigid, J.C., Demorito, J.D., Villegas, J.P., Gomez, D.O. (2023). Difficulties and coping strategies in understanding mathematical concepts in a private higher education in Tagum City, Davao Del Norte, Philippines. Davao Research Journal (DRJ), 14(1), 45-54, https://doi.org/10.59120/drj.v14i1.10