INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

GRADE 7 LEARNERS' MATH ANXIETY AND ITS RELATIONSHIP WITH THEIR MATHEMATICS PERFORMANCE IN A MOTHER HIGH SCHOOL

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ABSTRACT

This descriptive-correlational study was conducted to assess the Grade 7 learners' mathematics anxiety and its relationship with their mathematics performance. It found that learners generally experience a moderate level of mathematics anxiety, with this trend being consistent across all demographic groups. In contrast, the overall academic performance was rated as 'Very Satisfactory", consistent across sex and age, and even reaching an "Outstanding level" in specific academic programs.

Statistical analysis revealed no significant differences in mathematics anxiety based on sex or age, although differences were observed among academic programs. When it came to academic performance, significant differences were found based on sex and academic program, but age did not have a significant impact. The study also found no significant relationship between mathematics anxiety and academic performance, implying that students can maintain high academic achievement even with moderate anxiety levels. Based on these findings, it is recommended that academic institutions focus on program-specific interventions

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
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and emotional support strategies to sustain high performance while alleviating students' psychological stress.

Keywords: *Math Anxiety, Relationship, Performance*

INTRODUCTION

The 2022 Program for International Student Assessment (PISA) underscores the significant influence of math anxiety on academic performance, revealing that students with high anxiety scored approximately 60 points lower than their low- anxiety counterparts. However, students with a growth mindset—who believe that abilities can improve with effort—experienced lower anxiety levels and scored an average of 18 points higher than those with a fixed mindset (PISA, 2022). These global patterns emphasize the critical role of psychological and motivational factors in mathematics achievement (OECD, 2023).

The Philippines ranked among the countries with the highest levels of math anxiety among 15-year-old learners, according to an international assessment by the Organization for Economic Co-operation and Development (OECD). The assessment highlighted an increasing negative attitude toward mathematics from 2012 to 2022.

Mathematics is a key subject in education that helps develop logical reasoning, problem-solving skills, and analytical thinking. However, many learners, especially in junior high, feel a lot of anxiety when facing math tasks.

This issue, known as math anxiety, involves feelings of stress, worry, or fear that can disrupt math performance.

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ISSN: 2704-3010
Volume VII, Issue III
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In Grade 7, learners encounter new and more complex math concepts compared to earlier grades, such as algebra, geometry, and data analysis. These challenges can trigger or worsen anxiety, particularly for learners who already find math difficult. Research shows that high levels of math anxiety can hurt students' academic performance by making it harder for them to focus, reducing their confidence, and affecting their working memory during problem-solving (Barroso et al., 2021).

Zivkovic et al. (2023) added that math anxiety tends to lower students' beliefs in their own mathematical abilities. When students experience anxiety about math, they often feel less competent and less confident in their capacity to solve math problems. This reduced sense of competence is a core aspect of lower math performance.

Emotional experiences in math, such as anxiety, directly affect students' motivation and their performance with Mathematics subject. When students feel anxious, they are less likely to believe in their ability to succeed, which can lead to avoidance of math-related activities and poorer performance.

Academic achievement is widely considered a key factor in learners' future career success and is often used to assess their cognitive abilities (Fandos-Herrera et al., 2023). In addition, mathematical knowledge serves as a valuable tool for enhancing learners' problem-solving abilities and sound judgment, skills developed through mathematics (Marquez, 2023; Baki & Kilicoglu, 2023).

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ISSN: 2704-3010
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By figuring out how math anxiety relates to Mathematics performance, educators can create targeted solutions, improve teaching methods, and build a supportive environment that boosts confidence and skills in math.

The researcher personally observed that there are still a lot of learners who are experiencing mathematics anxiety which could not be immediately determined its causes. Other learners have low performance with Mathematics subject.

According to some of the co-teachers of the researcher, most of the learners who have mathematics anxiety are also those who have low performance in Mathematics.

This study aimed to look at the levels of math anxiety among Grade 7 learners and see how it is connected with their performance in mathematics subject. The results may help recommend effective strategies to reduce anxiety and improve learners' learning outcomes.

MATERIALS AND METHODS

Research Methodology

This chapter includes research methods, research design, respondents of the study, sampling design, data gathering procedure, research instrument, data analysis and statistical tools that was used in the analysis and interpretation of data in the study.

Research Method

This study was conducted through descriptive method. According to Singh (2023), descriptive method is a method of research that attempts to describe the nature of a phenomenon or a topic under study. It is used as an initial instrument by the researchers who

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intend to observe, record, and analyze the characteristics of a population, situation or a phenomenon under no manipulation of variables.

Research Design

This research was based on descriptive-correlational research design. It is a kind of a research methodology that tries to describe or record the nature, behaviors, views, opinions or perceptions of a group or population under investigation. In addition to that, it does not seek to determine cause and effect relationships among variables or predict future results. Rather, it aims to give a comprehensive and precise picture of the gathered data that can be helpful in making assumptions, exploring the tendencies, and discerning tendencies in data (Hassan, 2023).

Respondents of the Study

The respondents of the study were 269 Grade 7 learners randomly selected from a total population of 820.

Regarding their academic program, in the Regular Class with fourteen sections, 174 (64.6%) learners were randomly selected from the total respondents. In Altair, 14 (5%) learners were randomly selected from a total of 41. In Antares, 14 (5%) learners were randomly selected from a total of 42, and in Columbia, 13 (5%) learners were randomly selected from a total of 40.

In Comet, 11 (4%) learners were randomly selected from a total of 35. In Deneb, 12 (4%) learners were randomly selected from a total of 36. In Earth, 13 (5%) learners were randomly selected from a total of 40. In Jupiter, 13 (5%) learners were randomly selected

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ISSN: 2704-3010
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from a total of 39. In Luna, 12 (5%) learners were randomly selected from a total of 37, and in Mars, 11 (4%) learners were randomly selected from a total of 35. In Mercury, 11 (4%) learners were randomly selected from a total of 33. In Mira, 13 (5%) learners were randomly selected from a total of 39. In Neptune, 13 (5%) learners were randomly selected from a total of 38. In Orion, 11 (4%) learners were randomly selected from a total of 35, and in Phoebus, 13 (5%) learners were randomly selected from a total of 40.

The remaining participants were from specialized programs: Science, Technology, and Engineering (STE) with two sections. A total of 23 (8.6%) learners were randomly selected from the total respondents. In Newton, 12 (5%) learners were randomly selected from a total of 37, and in Joule, 11 (4%) learners were randomly selected from a total of 35.

In the Special Program Strengthened Technical- Vocational Education Program (STVEP) with two sections, 17 (6.3%) learners were randomly selected from the total respondents. In Debian, 11 (4%) learners were randomly selected from a total of 34, and in Fedora, 11 (4%) learners were randomly selected from a total of 34.

In the Special Program in the Arts (SPA) with two sections,

22 (8.2%) learners were randomly selected from the total respondents.

In Amorsolo, 11 (4%) learners were randomly selected from a total of 32, and in Tolentino, 11 (4%) learners were randomly selected from a total of 33.

In the Special Program in Sports (SPS), which had only one section, Pacquiao, 11 (4.1%) learners were randomly selected from the total respondents.

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In the Special Program in Foreign Language (SPFL) with two sections, 17 (6.3%) learners were randomly selected from the total respondents. In Cervantes, 9 (3%) learners were randomly selected from a total of 28, and in Madrid, 8 (3%) learners were randomly selected from a total of 25.

The data are shown in Table 1.

Table 1
Distribution of Respondents by Academic Program

Academic Program	N	n	&
1. Science, Technology, & Engineering (STE)			
a. Newton	37	12	5
b. Joule	35	11	4
2. Special Program Strengthened Technical - Vocational Education Program			
a. Debian	34	11	4
b. Fedora	34	11	4
3. Special Program in the Arts (SPA)			
a. Amorsolo	32	11	4
b. Tolentino	33	11	4
4. Special Program in Sports (SPS)			
a. Pacquiao	32	11	4
5. Special Program in Foreign Language (SPFL)			
a. Cervantes	28	9	3
b. Madrid	25	8	3
6. Regular Program			
a. Altair	41	14	5
b. Antares	42	14	5
c. Columbia	40	13	5
d. Comet	35	11	4
e. Deneb	36	12	4
f. Earth	40	13	5

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g. Jupiter	39	13	5
h. Luna	37	12	5
i. Mars	35	11	4
j. Mercury	33	11	4
k. Mira	39	13	5
l. Neptune	38	13	5
m. Orion	35	11	4
n. Phoebus	40	13	5
Total	820	269	100

Sampling Design

A two-stage random sampling design was used to obtain the desired number of respondents from the total population. After computing the sample size using Slovin's formula, simple random sampling was employed.

Simple random sampling is a method where a randomly selected subset of a population is chosen, ensuring that every member of the population has an equal chance of being included in the sample. This technique is fundamental in statistics for ensuring unbiased representation of the population in research studies (Thomas, 2023).

Stratified sampling was also used as the second stage of the sampling design to ensure a representative sample from each academic program. Stratified sampling divides into distinct subgroups or strata based on specific characteristics, and then randomly selects samples from each stratum either proportionally or equally. This approach ensures that each subgroup is adequately represented, increasing the precision and representativeness of the results.

Stratified sampling is a probability sampling technique where the population is divided into homogeneous subgroups, or strata, and a random sample is drawn from each stratum.

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This method enhances the efficiency of estimates and ensures representation across key subpopulations (Lohr, 2020).a

Research Instrument

The research instrument to be used in this study is a questionnaire used in the study of Aguirre (2024) which is called Mathematics Self-Efficacy and Anxiety Questionnaire (MSEAQ).

The questionnaire has two parts. Part one (1) is for the information about the respondents and part two (2) is for the questionnaire about the levels of learners' mathematical anxiety.

Part one (1) includes respondents' sex, section, age, and first and second quarter grade in Mathematics.

Part two (2) has 10 items for mathematics anxiety. The respondents were asked to rate every item following rating scale below:

5	-	Usually
4	-	Sometimes
3	-	About Half the Time
2	-	Seldom
1	-	Never

Data Gathering Procedures

Permits from the adviser and Dean of the Graduate School, PHINMA University of Iloilo were obtained to allow the researcher to conduct the study.

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Upon approval, a letter of request for the conduct of the research study was obtained from the office of the school principal of Capiz National High School.

The researcher will set a convenient schedule with the Principal assuring that there would be no disruption of classes to happen during the conduct of the research study.

The researcher requested the respondents to answer the questionnaire to be asked by the researcher. Researcher will guarantee the respondents for the utmost confidentiality of their answers. Upon retrieval of the questionnaire, responses were tallied and tabulated.

Data Analyses

The research instrument was reproduced according to the number of respondents of the study. After retrieval of the accomplished questionnaire, the data were organized, computed, and tallied.

The results were analyzed using the scale of means and its description below:

Scale of Means			Description
4.21	–	5.00	Very High
3.41	–	4.20	High
2.61	–	3.40	Moderate
1.81	–	2.60	Low
1.00	–	1.80	Very Low

Computations, analysis, and interpretations were done using the computer with the Statistical Package for Social Sciences (SPSS) software.

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Statistical Tools

Both descriptive and inferential statistics were used in the study. For descriptive statistics, frequency count, percentage, and mean were employed. For inferential statistics, t-test, ANOVA, and Pearson r were applied, with a significance level set at 0.05.

Frequency Count. Frequency count is a statistical method used to determine how often each value or category

occurs in a dataset. It provides a simple way to summarize data by tallying the number of observations within each category or value, enabling researchers to understand the distribution and prevalence of different elements within the dataset.

Frequency count refers to the process of tallying the number of occurrences of each distinct value or category within a dataset, serving as a fundamental descriptive statistic to summarize data distributions (Babbie, 2020).

This is used to find out the distribution of the respondents in a particular group, who will pick out, check statements or identify which best describes their mathematical performance and anxiety.

Percentage. Percentage is a statistical measure that expresses a number as a fraction of 100, allowing for easy comparison of proportions across different datasets or categories. It represents parts per hundred and is commonly used to describe relative frequencies or proportions within a whole.

A percentage is a way of expressing a number as a fraction of 100, often used

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to compare relative sizes of different groups or categories within a dataset (Johnson & Smith, 2022). This is used to find out the percentage of respondents in a particular group.

Mean. The mean also known as the average is a central tendency that is calculated by adding all the values in a dataset and then dividing by the number of observations. It offers a representative figure that gives the general distribution of the information.

The mean is an essential statistical instrument that defines the central value of a data set, as it is achieved by dividing all the pieces of data by the number of the pieces (Lee and Martinez, 2022).

When the variables are used to classify the learners, the average scores will be obtained using the mean to describe the assessment of the learners in terms of their performance in mathematics and anxiety.

t-test. A t-test is a statistical hypothesis test or the test used to identify whether the two groups of individuals have a significant difference in means which may be connected in other aspects.

Usually, it is used when the sample sizes are small and population variance is not known and it assists in determining whether the differences observed are probable to have occurred by chance.

The t-test is a statistical test that is parametric and is used to compare the mean of two groups to test whether they are statistically different or not particularly when the populations variances are unknown and the sample sizes are

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small (Chen and Patel, 2023). This is employed to determine the large difference in the evaluation of the respondents in terms of their mathematical performance and anxiety when categorized based on sex.

Analysis of Variance (ANOVA) One-Way. One-Way ANOVA is a statistical test that is employed to compare means of three and above independent groups to establish the presence of statistically significant differences among the groups. It evaluates whether one group mean is different to the other group means or not by comparing the variance in a group and between groups.

One-Way ANOVA is a type of parametric test to assess the differences among multiple means of groups, dividing the total variability into variability between groups and variability within groups, thereby testing the difference among the groups in general (Johnson & Lee, 2023). This is employed in determining the notable variations between the rating of the respondents on their mathematical performance and anxiety in relation to their section, age and sex.

Pearson Product Moment Coefficient (Pearsons r).

Pearson r is used to measure the linear relationship between two variables to quantify the relationship between

them in terms of strength and direction. It is between -1 to +1 in which a value near to +-1 indicates a strong linear relationship and a value near 0 would show that there is no linear correlation.

The correlation coefficient (r) by Pearson is a standardized value of linear

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relationships of two continuous variables used as a crucial parameter in statistical inference and predictive modeling (Smith and Nguyen, 2022). This is applied to determine the strong correlation between the mathematical performance level of the learners and their mathematical anxiety level.

RESULTS AND DISCUSSIONS

This study was conducted to assess Grade 7 learners' mathematics anxiety and its relationship with their academic performance at Capiz National High School during the 2025-2026 school year. A descriptive correlational research design was employed for this investigation. A random sample of 269 first-year students from Capiz National High School participated in the study.

Data were collected through a researcher-made questionnaire, which was divided into three sections: the respondents' socio-demographic profile, their level of mathematics anxiety, and their level of mathematics performance. The instrument was validated by a panel of experts, with tests for reliability, face validity, content validity, and construct validity.

The data were statistically analyzed using SPSS, with descriptive statistics (frequency counts, mean, and percentage) and inferential statistics (independent t-test,

ANOVA, and Pearson Product-Moment Correlation) used to determine if a relationship existed between the independent and dependent variables. The significance level was set at

0.05. Ethical guidelines were strictly followed to protect confidentiality, anonymity, and ensure voluntary participation, in accordance with the Data Privacy Act of 2012.

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Based on the data gathered from the respondents, the following findings were identified:

The overall level of mathematics anxiety among learners is moderate. This level remains consistent regardless of whether the students are categorized by sex, age, or academic program.

The general mathematics performance is very satisfactory. This is maintained across sex and age groups; however, performance rises to outstanding when categorized by specific academic programs.

There is no significant difference in anxiety levels based on sex and age. However, a significant difference exists when students are classified by their academic program.

A significant difference in performance exists based on sex and academic program, while no significant difference was found based on age.

There is no significant relationship between the level of mathematics anxiety and the level of academic performance.

Conclusion

Based on the findings of the study, the following conclusions were drawn:

Mathematics anxiety is a common experience among students, suggesting a universal psychological pressure associated with the subject that does not discriminate based on demographic profiles.

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ISSN: 2704-3010
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Students possess a strong foundational competence in mathematics. The outstanding result in specific programs suggests that certain specialized curricula may provide more rigorous training or better-aligned instructional support.

Demographic factors (who the student is) do not influence math anxiety as much as the academic environment (what the student is studying). The specific demands of different programs create varying emotional pressures.

While age does not play a role in how well a student performs, sex and the chosen field of study are critical determinants of academic success in mathematics.

Anxiety and performance are "decoupled" in this group. Students are remarkably resilient and capable of achieving high grades even while experiencing moderate levels of internal stress.

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