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STUDENTS' MATHEMATICS ANXIETY AND ITS RELATION TO THEIR SELF-EFFICACY AND SELF-MOTIVATION

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ABSTRACT

This study explores the impact of Mathematics Anxiety on the Self-Efficacy and self-motivation. Specifically, the investigation is rooted in the context of identifying how Mathematics Anxiety influences students' self-efficacy and motivation. It also measures the significant relationship between Mathematics Anxiety on Self-Efficacy and Self-Motivation.

A descriptive research design is employed, utilizing a structured questionnaire to collect data from 223 Junior High School students across four selected private schools in Malabon City. The survey instrument is validated through review. Statistical analysis is conducted using the Pearson correlation coefficient to examine the relationships between Mathematics Anxiety, Self-Efficacy, and self-motivation.

The level of Students' Mathematics Anxiety among junior high school students was high. The level of Students' Self-Efficacy among junior high school students was lacking confidence. The level of Self-Motivation among junior high school students was some degree. There is significant relationship between JHS Mathematics Anxiety ad Self-Efficacy. There is significant relationship between the JHS Mathematics Anxiety and Self-Motivation.

It is found that Mathematics Anxiety has a significant relationship with both Self-Efficacy and self-motivation among junior high school students in private schools in Malabon City, leading to rejection of both hypotheses, It is concluded that there are certain dimensions of Mathematics Anxiety that is meaningfully affecting some scopes of Self-Motivation, although not as strong as Self-Efficacy.

Based on the findings, it is recommended that educational interventions should focus on reducing Mathematics Anxiety through supportive teaching practices and promoting positive self-talk. In addition, implementing programs that enhance students' Self-Efficacy and intrinsic motivation in mathematics could lead to improved academic performance and psychological well-being.

KEYWORDS: *Mathematics Anxiety; Self-Efficacy; self-motivation.*

1. INTRODUCTION

In the realm of education, Mathematics Anxiety poses a significant hurdle, particularly among junior high school (JHS) students in the Philippines. This research explores the dynamics between Mathematics Anxiety, JHS students' Self-Efficacy, and Self-Motivation in private schools in Malabon City. By delving into these relationships, the study seeks to provide crucial insights to inform interventions aimed at enhancing students' psychological resilience and academic performance.

Mathematics Anxiety is a global issue with pronounced effects in the Philippines, a country struggling with educational performance on the international stage. According to OECD PISA 2018 results, over 50% of Filipino students scored below the lowest proficiency level in mathematics, positioning the Philippines near the bottom of the rankings. This underperformance is particularly severe in public schools, where students consistently score lower than their private school counterparts.

Research from the Angelo King Institute for Economic and Business Studies (AKI) at De La Salle University highlights that poor mathematics performance in Filipino students is linked to socio-economic factors and educational disparities. Public school students face greater challenges, with socio-economic status and family background significantly affecting academic outcomes. These factors contribute to heightened Mathematics Anxiety, which negatively impacts Self-Efficacy and Self-Motivation.

The central thesis of this research posits that Mathematics Anxiety detrimentally affects JHS students' Self-Efficacy and Self-Motivation. By investigating these relationships, the study aims to enrich the scholarly discourse on Mathematics Anxiety and offer actionable insights for shaping educational policies and practices. In addition, the research seeks to uncover factors that moderate or mediate the relationship between Mathematics Anxiety and students' psychological and academic well-being.

Understanding the relationship between Mathematics Anxiety, Self-Efficacy, and Self-Motivation is crucial. While some students may succumb to Mathematics Anxiety, others may exhibit resilience and employ adaptive coping mechanisms. Contextual factors, such as socio-economic status and pedagogical approaches, significantly influence students' experiences and responses to Mathematics Anxiety. Through empirical investigation, this study aimed to contribute valuable insights to education, facilitating the development of targeted interventions to support students' psychological well-being and academic success, ultimately improving the educational outcomes and global competitiveness of Filipino students.

1.1 Statement of the Problem

The specific questions addressed are:

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1. What is the level of JHS Students' Mathematics Anxiety in terms to:
   1.1. fear of failure;
   1.2. test anxiety;
   1.3. performance anxiety;
   1.4. negative self-talk; and
   1.5. physiological symptoms?
2. What is the level of JHS Students' Self-Efficacy in terms of:
   2.1 perceived competence;
   2.2 task specific Self-Efficacy;
   2.3 persistence;
   2.4 self-regulatory skills; and
   2.5 past experiences?
3. What is the level of self-motivation in terms to:
   3.1. intrinsic motivation;
   3.2. goal orientation;
   3.3. task value;
   3.4. engagement;
   3.5. academic aspirations?
4. Is there a significant relationship between JHS Mathematics Anxiety and JHS Students' Self-Efficacy?
5. Is there a significant relationship between JHS Mathematics Anxiety and JHS Students' Self-Motivation?

2. METHODOLOGY

This research employs a descriptive design, utilizing surveys and questionnaires to collect data on Mathematics Anxiety, Self-Efficacy, and Self-Motivation among junior high school students in selected private schools in Malabon. The instruments, crafted by the researcher and validated by experts, ensure reliability and accuracy. This approach aims to provide comprehensive insights into the interplay between Mathematics Anxiety, JHS students' Self-Efficacy, and Self-Motivation, highlighting factors that influence students' attitudes and behaviors towards mathematics learning.

According to Creswell (2023), descriptive research design is used to describe the characteristics of a population or phenomenon being studied, primarily to gain an understanding of a group or phenomenon. This involves collecting data through surveys, interviews, or observation.

3. RESULTS AND DISCUSSION

This chapter discusses the Presentation, Interpretation, and Analysis of data gathered throughout this research. This chapter presents a comprehensive analysis of the collected data to explore the complex relationships among these variables and their implications for mathematics education.

Level of JHS Students' JHS Students' Mathematics Anxiety

This section discusses the results of the survey conducted for this research. The first part discusses the level of JHS Students' JHS Students' Mathematics Anxiety in terms of the sub-variable that have been listed.

The following table shows the Statements, Means, Standard Deviations, and Remarks as verbal interpretation of the data gathered for each of the variables.

The data set reveals that participants mostly agree with statements indicating high levels of Mathematics Anxiety. Specifically, respondents' express concerns about their ability to understand challenging math problems, apply math skills confidently due to fear of failing, and analyze complex problems effectively. In addition, negative thoughts about failing in math and fear of failure hinder their ability to evaluate progress and create strategies to overcome challenges.

Table 1 illustrates the level of JHS Students' JHS Students' Mathematics Anxiety in terms of Fear of Failure.

Table 1

Level of JHS Students' JHS Students' Mathematics Anxiety in terms of Fear of Failure

STATEMENT	MEAN	SD	REMARKS
When faced with challenging math problems, I worry about my ability to understand them.	3.76	0.71	Mostly Agree
I struggle to apply my math skills confidently due to fear of failing.	3.76	0.72	Mostly Agree
My fear of making mistakes in math inhibits my ability to analyze complex problems effectively.	3.90	0.75	Mostly Agree
Negative thoughts about failing in math often hinder my ability to evaluate my own progress.	3.67	0.73	Mostly Agree
My fear of failure in math leads to difficulty in creating strategies to overcome challenges.	3.92	0.80	Mostly Agree
Weighted Mean			3.80
SD			0.75
Verbal Interpretation			High Levels of anxiety

Table 2 illustrates the level of JHS Students' JHS Students' Mathematics Anxiety in terms of Test Anxiety.

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Table 2
Level of JHS Students' JHS Students' Mathematics Anxiety in terms of Test Anxiety

STATEMENT	MEAN	SD	REMARKS
Before math exams, I find it challenging to recall and understand the concepts I've learned.	3.70	0.71	Mostly Agree
During math tests, I have difficulty applying problem-solving strategies due to anxiety.	3.79	0.74	Mostly Agree
Test anxiety interferes with my ability to analyze and interpret mathematical information accurately.	3.90	0.73	Mostly Agree
The pressure of math exams makes it difficult for me to evaluate my own performance objectively.	3.76	0.71	Mostly Agree
Physiological symptoms during math tests impact my ability to synthesize information effectively.	3.85	0.82	Mostly Agree
Weighted Mean		3.80	
SD		0.75	
Verbal Interpretation		High Levels of anxiety	

The level of JHS Students' JHS Students' Mathematics Anxiety among respondents in terms of test anxiety has a weighted mean of 3.80 indicating high levels of anxiety. Participants mostly agree that test anxiety affects various aspects of their performance, including recalling concepts before math exams, applying problem-solving strategies during tests, and evaluating their own performance objectively. Moreover, physiological symptoms during math tests contribute to the interference with their ability to synthesize information effectively.

Table 3 illustrates the level of JHS Students' JHS Students' Mathematics Anxiety in terms of Performance Anxiety.

Table 3
Level of JHS Students' JHS Students' Mathematics Anxiety in terms of Performance Anxiety

STATEMENT	MEAN	SD	REMARKS
Presenting math work to others makes it hard for me to understand my own abilities.	3.74	0.71	Mostly Agree
When working on math tasks in front of others, I struggle to apply my skills confidently.	3.79	0.77	Mostly Agree
The fear of judgment affects my ability to analyze math problems critically during public performances.	3.90	0.72	Mostly Agree
Negative thoughts about my math abilities hinder my capacity to evaluate my performance objectively.	3.74	0.71	Mostly Agree
Anxiety about performing well in math prevents me from synthesizing information effectively in public settings.	3.83	0.80	Mostly Agree
Weighted Mean		3.80	
SD		0.74	
Verbal Interpretation		High Levels of anxiety	

Table 4 illustrates the level of JHS Students' Mathematics Anxiety in terms of Negative Self-Talk.

Table 4
Level of JHS Students' Mathematics Anxiety in terms of Negative Self-talk

STATEMENT	MEAN	SD	REMARKS
I often doubt my understanding of math concepts due to negative self-talk.	3.79	0.76	Mostly Agree
Negative thoughts about my math abilities hinder my application of problem-solving strategies.	3.74	0.72	Mostly Agree
My critical analysis of math problems is affected by negative self-talk.	3.86	0.73	Mostly Agree
Negative self-talk makes it difficult for me to evaluate my progress accurately in math.	3.75	0.76	Mostly Agree
Negative thoughts about my math skills impact my ability to synthesize information effectively.	3.88	0.79	Mostly Agree
Weighted Mean		3.81	
SD		0.75	
Verbal Interpretation		High Levels of anxiety	

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This table shows a weighted mean of 3.81 indicating high levels of anxiety. Participants mostly agree that negative self-talk affects various aspects of their mathematical performance, including doubting their understanding of concepts, hindering the application of problem-solving strategies, affecting critical analysis of math problems, impeding accurate self-evaluation of progress, and impacting the ability to synthesize information effectively.

Table 5 illustrates the level of JHS Students' JHS Students' Mathematics Anxiety in terms of Physiological Symptoms.
This illustrates that respondents experience high levels of JHS Students' JHS Students' Mathematics Anxiety in terms of physiological symptoms, with a mean score of 3.79 and a verbal interpretation of "High Levels of anxiety." The data suggests that physiological symptoms significantly impact various aspects of mathematical performance, including understanding of concepts, application of problem-solving strategies, analysis of mathematical information, evaluation of performance, and synthesis of information. The consistency in the "Mostly Agree" remarks across all statements highlights the pervasive nature of physiological symptoms-related anxiety among the respondents.

Table 5

Level of JHS Students' JHS Students' Mathematics Anxiety in terms of Physiological symptoms

STATEMENT	MEAN	SD	REMARKS
Physiological symptoms such as rapid heartbeat interfere with my understanding of math concepts.	3.68	0.68	Mostly Agree
During math tasks, physical discomfort makes it hard for me to apply problem-solving strategies.	3.78	0.74	Mostly Agree
Physiological symptoms like sweating or trembling hinder my analysis of mathematical information.	3.88	0.76	Mostly Agree
Physical discomfort during math activities makes it challenging for me to evaluate my performance accurately.	3.74	0.71	Mostly Agree
Physiological symptoms affect my ability to synthesize mathematical information effectively.	3.89	0.82	Mostly Agree
Weighted Mean		3.79	
SD		0.75	
Verbal Interpretation		High Levels of anxiety	

This illustrates that respondents experience high levels of JHS Students' JHS Students' Mathematics Anxiety in terms of physiological symptoms, with a mean score of 3.79 and a verbal interpretation of "High Levels of anxiety." The data suggests that physiological symptoms significantly impact various aspects of mathematical performance, including understanding of concepts, application of problem-solving strategies, analysis of mathematical information, evaluation of performance, and synthesis of information. The consistency in the "Mostly Agree" remarks across all statements highlights the pervasive nature of physiological symptoms-related anxiety among the respondents.

Level of JHS Students' Self-Efficacy

This section discusses the results of the survey conducted for this research. This second part discusses the level of JHS Students' Self-Efficacy in terms of the sub-variable that have been listed previously. This section holds an utmost importance since the sub-variables under Self-Efficacy is tested against the sub-variables under Mathematics Anxiety. These sub-variables are Self-Efficacy in terms of perceived competence, task-specific self-efficacy, persistence, self-regulatory skills, and past experiences

The following table shows the Statements, Means, Standard Deviations, and Remarks as verbal interpretation of the data gathered for each of the variables.

Table 6 illustrates the level of JHS Students' Self-Efficacy in terms of Perceived Competence.

Table 6

Level of JHS Students' Self-Efficacy in terms of Perceived Competence

STATEMENT	MEAN	SD	REMARKS
I believe I understand math concepts well enough to apply them in different contexts.	2.03	0.68	Disagree
I am confident in my ability to solve math problems independently.	2.02	0.74	Disagree
I am confident that I can analyze complex math problems effectively.	2.09	0.76	Disagree
I believe in my ability to evaluate my own mathematical progress accurately.	1.88	0.71	Disagree
I trust that I can synthesize mathematical information to solve real-world problems.	1.99	0.82	Disagree
Weighted Mean		2.00	
SD		0.89	
Verbal Interpretation		lack of confidence and belief in one's abilities	

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The data is shown with a weighted mean of 2.00 indicating a lack of confidence and belief in one's abilities. Participants generally disagree with statements reflecting confidence in understanding math concepts, solving problems independently, analyzing complex problems effectively, evaluating -Efficacy.

mathematical progress accurately, and synthesizing mathematical information to solve real-world problems.

Table 7 illustrates the level of JHS Students' Self-Efficacy in terms of Task Specific JHS Students' Self

Table 7

Level of JHS Students' Self-Efficacy in terms of Task Specific Self-Efficacy

STATEMENT	MEAN	SD	REMARKS
I am confident in my ability to apply math concepts to solve real-life problems.	1.96	0.92	Disagree
I believe I can successfully complete math assignments independently.	2.00	0.90	Disagree
I trust myself to handle math tasks that are new or unfamiliar.	2.13	0.87	Disagree
I am capable of mastering difficult math topics with practice.	2.03	0.92	Disagree
I am confident in my ability to tackle math problems of varying complexity.	1.87	0.84	Disagree
Weighted Mean		2.00	
SD		0.89	
Verbal Interpretation		lack of confidence and belief in one's abilities	

The table below shows with a weighted mean of 2.00 indicating a lack of confidence and belief in one's abilities. Participants generally disagree with statements reflecting confidence in applying math concepts to solve real-life problems, completing math assignments independently, handling new or unfamiliar math tasks, mastering difficult math topics with practice, and tackling math problems of varying complexity.

Table 8 illustrates the level of JHS Students' Self-Efficacy in terms of Persistence.The data set is presented and shows a weighted mean of 2.01 indicating a lack of confidence and belief in one's abilities. Participants generally disagree with statements reflecting determination to overcome challenges when learning new math concepts, persistence in solving difficult math problems, trying different approaches until understanding complex topics, not giving up easily when faced with math obstacles, and commitment to improving math skills through continuous effort and practice.

Table 8

Level of JHS Students' Self-Efficacy in terms of Persistence

STATEMENT	MEAN	SD	REMARKS
I am determined to overcome challenges when learning new math concepts.	2.00	0.92	Disagree
I persist in solving difficult math problems until I find a solution.	1.95	0.89	Disagree
I keep trying different approaches until I understand complex math topics.	2.17	0.87	Disagree
I don't give up easily when faced with math obstacles; I keep trying until I succeed.	2.01	0.92	Disagree
I am committed to improving my math skills through continuous effort and practice.	1.91	0.87	Disagree
Weighted Mean		2.01	
SD		0.90	
Verbal Interpretation		lack of confidence and belief in one's abilities	

Table 9 illustrates the level of JHS Students' Self-Efficacy in terms of Self-regulatory skills.

Table 9

Level of JHS Students' Self-Efficacy in terms of Self-regulatory Skills

STATEMENT	MEAN	SD	REMARKS
I can effectively manage my time when working on math assignments.	1.97	0.90	Disagree
I set achievable goals to improve my math performance.	1.99	0.92	Disagree
I monitor my progress regularly to ensure I stay on track with my math goals.	2.11	0.89	Disagree
I use effective study strategies to enhance my understanding of math concepts.	1.93	0.90	Disagree
I adjust my approach to math tasks based on feedback and evaluation.	2.00	0.86	Disagree
Weighted Mean		2.00	

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SD	0.89
Verbal Interpretation	lack of confidence and belief in one's abilities

The table is shown with a weighted mean of 2.00 indicating a lack of confidence and belief in one's abilities. Participants generally disagree with statements reflecting effective time management when working on math assignments, setting achievable goals to improve math performance, monitoring progress regularly to stay on track with math goals, using effective study strategies to enhance understanding of math concepts, and adjusting approach to math tasks based on feedback and evaluation.

Table 10 illustrates the level of JHS Students' Self-Efficacy in terms of the Past experiences.

Table 10

Level of JHS Students' Self-Efficacy in terms of Past experiences

STATEMENT	MEAN	SD	REMARKS
Previous successes in math boost my confidence in current math tasks.	1.99	0.94	Disagree
Positive feedback from teachers or peers encourages me to believe in my math abilities.	2.00	0.91	Disagree
Overcoming past math challenges has strengthened my belief in myself.	2.04	0.87	Disagree
Reflecting on past achievements in math motivates me to tackle new challenges.	2.02	0.92	Disagree
Learning from past mistakes helps me approach math tasks with more confidence.	1.93	0.85	Disagree
Weighted Mean	2.00		
SD	0.90		
Verbal Interpretation	lack of confidence and belief in one's abilities		

The table below is shown with a weighted mean of 2.00 indicating a lack of confidence and belief in one's abilities. Participants generally disagree with statements reflecting the positive impact of past experiences on their confidence in current math tasks, belief in math abilities due to positive feedback, strengthening of belief through overcoming past challenges, motivation derived from reflecting on past achievements, and increased confidence in approaching math tasks through learning from past mistakes.

Level of JHS Students' Self-Motivation

This section discusses the results of the survey conducted for this research. This third part discusses the level of JHS Students' Self-Motivation in terms of the sub-variable that have been listed.

The following table shows the Statements, Means, Standard Deviations, and Remarks as verbal interpretation of the data gathered for each of the variables.Table 11 illustrates the level of JHS Students' Self-Motivation in terms of Intrinsic Motivation.

Table 11 is being shown with a weighted mean of 2.25 suggesting some degree of motivation. Participants generally disagree with statements reflecting deriving joy from tackling challenging math problems for comprehension, exploring mathematical concepts out of curiosity, finding satisfaction in understanding complex math topics, being driven to learn math for intellectual growth, and being intrinsically rewarded by engaging with math tasks.

Table 11

Level of JHS Students' Self-Motivation in terms of Intrinsic Motivation

STATEMENT	***MEAN***	***SD***	***REMARKS***
I derive joy from tackling challenging math problems for the sake of comprehension.	2.33	0.79	Disagree
Exploring mathematical concepts out of curiosity is inherently rewarding.	2.26	0.81	Disagree
Understanding complex math topics brings me a profound sense of satisfaction.	2.20	0.93	Disagree
I am driven to learn math for the sheer pleasure of intellectual growth.	2.24	0.82	Disagree
Engaging with math tasks intrinsically rewards me with a sense of fulfillment.	2.22	0.89	Disagree
Weighted Mean	*2.25*		
SD	*0.85*		
Verbal Interpretation	*some degree of motivation*		

Table 12 illustrates the level of JHS Students' Self-Motivation of Respondents in terms of Goal Orientation.

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Table 12
Level of JHS Students' Self-Motivation in terms of Goal Orientation

STATEMENT	***MEAN***	***SD***	***REMARKS***
I establish precise goals to enhance my math skills and monitor my progress.	2.20	0.83	Disagree
My pursuit of math-related aspirations propels my endeavors.	2.24	0.81	Disagree
Deconstructing long-term math goals into smaller tasks aids in maintaining focus.	2.19	0.94	Disagree
I am motivated to excel in math to fulfill both personal and academic ambitions.	2.29	0.83	Disagree
Regularly reassessing my math goals sustains my motivation and concentration.	2.08	0.94	Disagree
Weighted Mean		*2.20*	
SD		*0.87*	
Verbal Interpretation		*some degree of motivation*	

The dataset is shown a weighted mean of 2.20 suggesting some degree of motivation. Participants generally disagree with statements reflecting establishing precise goals to enhance math skills and monitoring progress, being propelled by pursuit of math-related aspirations, deconstructing long-term math goals into smaller tasks to maintain focus, being motivated to excel in math for personal and academic ambitions, and regularly reassessing math goals to sustain motivation and concentration.

Table 13 illustrates the level of JHS Students' Self-Motivation in terms of Task Value.

Table 13
Level of JHS Students' Self-Motivation in terms of Task Value

STATEMENT	***MEAN***	***SD***	***REMARKS***
I recognize the practical relevance of math in both daily life and future aspirations.	2.20	0.87	Disagree
Grasping math concepts is pivotal for my academic success and future career prospects.	2.22	0.88	Disagree
I acknowledge the value of honing problem-solving skills through math study.	2.17	0.99	Disagree
Appreciating the interdisciplinary role of math motivates me to delve deeper into the subject.	2.07	0.84	Disagree
Discovering meaning and purpose in math learning drives my motivation beyond mere grades.	2.27	0.95	Disagree
Weighted Mean		2.19	
SD		0.91	
Verbal Interpretation		some degree of motivation	

The table is presented with a weighted mean of 2.19 suggesting some degree of motivation. Participants generally disagree with statements reflecting recognizing the practical relevance of math in daily life and future aspirations, considering grasping math concepts pivotal for academic success and future career prospects, acknowledging the value of honing problem-solving skills through math study, appreciating the interdisciplinary role of math, and discovering meaning and purpose in math learning beyond mere grades.

Table 14 illustrates the level of JHS Students' Self-Motivation in terms of Engagement.

Table 14
Level of JHS Students' Self-Motivation in terms of Engagement

STATEMENT	***MEAN***	***SD***	***REMARKS***
Actively participating in math discussions and activities is integral to my learning.	2.26	0.82	Disagree
I actively seek opportunities to deepen my understanding of math outside of formal settings.	2.16	0.80	Disagree
Immerse myself in challenging math problems for extended periods is inherently rewarding.	2.38	0.89	Disagree
Collaborating with peers on math projects and assignments enriches my learning experience.	2.16	0.82	Disagree
Anticipating math lessons and eagerly absorbing new concepts keeps me	2.27	0.94	Disagree

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engaged in the subject.	
Weighted Mean	*2.24*
SD	*0.86*
Verbal Interpretation	*some degree of motivation*

The table is showing with a weighted mean of 2.24 indicating some degree of motivation. The participants generally disagree with statements reflecting actively participating in math discussions and activities, seeking opportunities to deepen understanding of math outside of formal settings, finding immersion in challenging math problems rewarding, collaborating with peers on math projects enriching their learning experience, and eagerly anticipating math lessons to stay engaged in the subject.

Table 15 illustrates the level of JHS Students' Self-Motivation in terms of Academic Aspirations.

The table below is shown with a weighted mean of 2.22 indicating some degree of motivation. The participants generally disagree with statements reflecting aspirations for further studies or careers in mathematics-related fields, clear academic goals related to math achievement guiding their pursuits, motivation to excel in math for future opportunities, striving for high grades in math to realize academic aspirations, and prioritizing maximizing potential in math to achieve long-term academic goals.

Table 15

Level of JHS Students' Self-Motivation in terms of Academic Aspirations

STATEMENT	***MEAN***	***SD***	***REMARKS***
I aspire to pursue further studies or careers in fields that heavily involve mathematics.	2.19	0.81	Disagree
Clear academic goals related to math achievement guide my academic pursuits.	2.28	0.91	Disagree
I am motivated to excel in math to unlock future opportunities for personal and professional growth	2.14	0.88	Disagree
Striving for high grades in math is instrumental in realizing my academic aspirations.	2.17	0.84	Disagree
I prioritize maximizing my potential in math to achieve my long-term academic goals.	2.29	0.88	Disagree
Weighted Mean		*2.22*	
SD		*0.87*	
Verbal Interpretation		*some degree of motivation*	

Significant Relationship Between JHS Students' Mathematics Anxiety and JHS Students' Self-Efficacy

This section discusses the relationship between the Independent Variable JHS Students' Mathematics Anxiety and the Dependent Variable JHS Students' Self-Efficacy.

To test the significant relationship between JHS Students' Mathematics Anxiety and JHS Students' Self-Efficacy, data were treated statistically using Minitab 14 using the Pearson Correlation Coefficient.

Table 16 illustrates the significant relationship between JHS Students' Mathematics Anxiety (independent variable) and JHS Students' Self-Efficacy (dependent variables).

Table 16

Significant Relationship between JHS Students' Mathematics Anxiety and JHS Students' Self-Efficacy

	JHS Students' Self-Efficacy (DV)				
JHS Students' Mathematics Anxiety (IV)	Perceived Competence	Task Specific JHS Students' Self-Efficacy	Persistence	Self-regulatory Skills	Past Experiences
Fear of Failure:					
Pearson	0.118	0.005	0.008	0.236	0.107
Correlation	0.079	0.947	0.904	0.000*	0.110
p-value	223	223	223	223	223
N					
Test Anxiety:					
Pearson	0.080	0.000	0.000	0.167	0.154

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Correlation	0.233	1.000	1.000	0.013*	0.021*
p-value	223	223	223	223	223
N					
Performance Anxiety:					
Pearson	0.063	0.002	0.607	0.189	0.118
Correlation	0.350	0.972	0.000*	0.005*	0.079
p-value	223	223	223	223	223
N					
Negative Self-Talk:					
Pearson	0.569	0.004	0.191	0.578	0.341
Correlation	0.000*	0.956	0.004*	0.000*	0.000*
p-value	223	223	223	223	223
N					
Psychological Symptoms:					
Pearson	0.118	0.118	0.095	0.267	0.555
Correlation	0.079	0.079	0.158	0.000*	0.000*
p-value	223	223	223	223	223
N					

*Note: * p < .05*

The table above presents Pearson correlation coefficients, p-values, and sample sizes (N) for various dimensions of JHS Students' Self-Efficacy in relation to different aspects of Mathematics Anxiety.

For fear of failure, there is a significant positive correlation with self-regulatory skills (r = 0.236, p = 0.000), indicating that higher levels of fear of failure are associated with lower self-regulatory skills in mathematics.

In terms of test anxiety, a significant positive correlation is observed with self-regulatory skills (r = 0.167, p = 0.013) and past experience (r = 0.154, p = 0.021), suggesting that higher test anxiety is linked to lower self-regulatory skills and less positive experiences in mathematics.

Performance anxiety shows a significant positive correlation with self-regulatory skills (r = 0.189, p = 0.005) and past experiences (r = 0.118, p = 0.079), indicating that higher levels of performance anxiety are associated with weaker self-regulatory skills and less positive past experiences in mathematical contexts.

Negative self-talk exhibits significant positive correlations with perceived competence (r = 0.569, p = 0.000), persistence (r = 0.191, p = 0.004), and past experiences (r = 0.341, p = 0.000), suggesting that higher levels of negative self-talk are linked to lower perceived competence, weaker persistence, and less positive past experiences in mathematics.

Lastly, physiological symptoms demonstrate significant positive correlations with self-regulatory skills (r = 0.267, p = 0.000) and past experiences (r = 0.555, p = 0.000), indicating that higher levels of physiological symptoms during mathematical activities are associated with low self-regulatory skills and less positive past experiences in mathematics.

The analysis reveals a consistent pattern: higher levels of JHS Students' Mathematics Anxiety are significantly associated with lower levels of JHS Students' Self-Efficacy across various dimensions. Moreover, negative self-talk and physiological symptoms show the strongest correlations with multiple aspects of JHS Students' Self-Efficacy, highlighting the pervasive impact of these types of anxiety. The findings underscore the importance of addressing JHS Students' Mathematics Anxiety in educational settings to improve students' JHS Students' Self-Efficacy, particularly in enhancing their regulatory skills and ensuring more positive past experiences in mathematics.

Relationship between JHS Students' Mathematics Anxiety and JHS Students' Self-Motivation

This section discusses the relationship between the Independent Variable JHS Students' Mathematics Anxiety and the Dependent Variable JHS Students' Self-Motivation.

To test the significant relationship between JHS Students' Mathematics Anxiety and JHS Students' Self-Motivation, data were treated statistically using Minitab 14 using the Pearson Correlation Coefficient.

Table 17 depicts the significant relationship between JHS Students' Mathematics Anxiety (independent variable) and JHS Students' Self-Motivation (dependent variables). The table presents Pearson correlation coefficients, p-values, and sample sizes (N) for various dimensions of JHS Students' Self-Motivation in relation to different aspects of Mathematics Anxiety.

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Table 17

Significant Relationship between JHS Students' Mathematics Anxiety and JHS Students' Self-Motivation

JHS Students' Mathematics Anxiety(IV)	JHS Students' Self-Motivation (DV)				
	Intrinsic motivation	Goal orientation	Task value	engagement	Academic aspirations
Fear of Failure:					
Pearson Correlation	0.104	0.101	0.117	0.100	0.124
p-value	0.122	0.134	0.081	0.136	0.065
N	223	223	223	223	223
Test Anxiety:					
Pearson Correlation	0.000	0.085	0.041	0.000	0.044
p-value	1.000	0.205	0.544	1.000	0.512
N	223	223	223	223	223
Performance Anxiety:					
Pearson Correlation	0.009	0.043	0.011	0.019	0.018
p-value	0.897	0.523	0.870	0.775	0.794
N	223	223	223	223	223
Negative Self-Talk:					
Pearson Correlation	0.034	0.030	0.025	0.015	0.041
p-value	0.611	0.654	0.708	0.822	0.540
N	223	223	223	223	223
Psychological Symptoms:					
Pearson Correlation	0.111	0.119	0.160	0.135	0.077
p-value	0.097	0.077	0.016*	0.045*	0.252
N	223	223	223	223	223

These findings suggest that while JHS Students' Mathematics Anxiety may not significantly correlate with certain aspects of JHS Students' Self-Motivation, psychological symptoms related to anxiety have a notable relationship with task value and engagement in mathematical activities. Similarly, these findings underscore the importance of addressing Mathematics Anxiety and nurturing JHS Students' Self-Efficacy beliefs to promote intrinsic motivation and positive outcomes in mathematics education. By understanding the interplay between these variables, educators can design effective interventions to support students' mathematical learning and foster a conducive learning environment.

4. CONCLUSION AND RECOMMENDATIONS

The study demonstrates that high levels of Mathematics Anxiety significantly reduce JHS Students' Self-Efficacy among junior high school students in private schools in Malabon City, thus, leading to reject the first null hypothesis. Students who experience intense anxiety about mathematics tend to doubt their abilities, which negatively impacts their confidence and persistence in tackling mathematical tasks. This can help educators and educational institutions to work on creating methods to improve student's Self-Efficacy to lessen the fears of students in tackling problems related to Mathematics.

Furthermore, there is a significant negative relationship between Mathematics Anxiety and Self-Motivation. This also inclines to reject our second null hypothesis. Students with higher anxiety levels are less motivated to engage with mathematical tasks, affecting their overall academic performance and interest in mathematics. These findings should be used to determine steps and ways to increase the students' motivation to directly.

Recommendations

Considering the findings and conclusions of the study, the following are recommended.

1. Students may participate in Mathematics Anxiety Reduction Programs to reduce mathematics anxiety, such as mindfulness sessions, relaxation techniques, and peer support groups. They can also enhance Self-Efficacy through Incremental Achievements. Students should focus on incremental achievements and celebrate small successes in mathematics to build their self-efficacy and confidence. They can also utilize Academic Resources such as tutoring sessions, online courses, and educational apps to strengthen their understanding and skills in mathematics.
2. Educators may implement Anxiety-Reducing Teaching Strategies such as collaborative learning, hands-on activities, and real-world problem-solving scenarios. They should also focus on Positive Reinforcement to help students build their self-efficacy and motivation in mathematics. Educators should also focus on Continuous Professional Development to stay updated with the latest pedagogical techniques and interventions for managing mathematics anxiety and enhancing self-efficacy.
3. School Administrators may develop Comprehensive Support Programs that address mathematics anxiety, such as counseling services, workshops, and seminars for both students and teachers. They should also allocate resources for training and development of

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teachers to equip them with the skills necessary to address mathematics anxiety and improve student self-efficacy. They should also always monitor and evaluate the effectiveness of interventions and programs aimed at reducing mathematics anxiety and improving self-efficacy among students.

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