Mathematics Anxiety and Academic Performance of Freshman College of Education Students

Angel Grace C. Garado[ab], Neil Angelo R. Villarazo[b], Reuel B. Fajardo[b], Hanna Shyne O. Bello[b], Joycelyn C. Odevilas[b], Mark Ronald C. Abuga-a[b]
[a] *agarado05@gmail.com*

Eastern Samar State University – Salcedo Campus, Salcedo, Eastern Samar, 6807, Philippines

Abstract

This study examined the relationship between mathematics anxiety and academic performance among freshman students in the College of Education at Eastern Samar State University – Salcedo Campus during the 2024–2025 academic year. A total of 86 students participated in the study using complete enumeration. The Revised Mathematics Anxiety Rating Scale (RMARS) was used to determine students' level of anxiety, while their final grades in Mathematics in the Modern World were used to assess academic performance. The study employed a descriptive-comparative-correlational research design. Findings revealed that most students were female, aged 19–20, and enrolled in the Bachelor of Elementary Education program. The respondents demonstrated an average level of mathematics anxiety, particularly in tasks involving problem-solving and abstract reasoning. A majority also showed low academic performance. No significant differences in mathematics anxiety were found based on demographic characteristics, but academic performance differed significantly by sex and academic program. A very weak and statistically insignificant negative correlation was found between mathematics anxiety and academic performance. The study concludes that while math anxiety is prevalent, it is not a strong predictor of performance. It recommends academic support programs, inclusive emotional support services, and further research exploring additional factors influencing mathematics achievement.

Keywords: Mathematics anxiety, academic performance, freshman college students, RMARS, descriptive-comparative-correlational study

1. Introduction

Mathematics anxiety is understood as a specific emotional condition depicted by tension, apprehension, or fear related to mathematics. These emotional states could disrupt cognitive processes and impede mathematical performance (Pletzer et al., 2015; Ramirez et al., 2018). Chang and Beilock (2016) further noted that individuals experiencing mathematics anxiety often display psychological symptoms, including avoidance behaviours associated with mathematics learning. The negative effects of mathematics anxiety extend beyond emotional reactions. Ramirez et al. (2018) revealed that anxiety related to mathematics could greatly hinder students' mathematical skills, which may eventually result in a decline in academic performance. These findings highlight the need to better understand and address mathematics anxiety in educational settings.

Several studies have consistently shown a negative relationship between mathematics anxiety and academic performance among students, including those enrolled in education programs. Barroso et al. (2021) conducted a meta-analysis revealing that higher levels of mathematics anxiety are associated with lower mathematical achievement across various academic levels. Similarly, Namkung et al. (2019) found that students experiencing mathematics anxiety often encounter difficulties when performing mathematical tasks. This situation could be particularly concerning for education students, who are expected to develop strong competence in mathematics in order to effectively teach the subject in the future. Furthermore, Putwain et al.

(2017) highlighted that students' academic emotions are strongly tied to their achievement over time, highlighting the broader impact of emotional factors, including anxiety, on students' motivation and engagement in learning.

For education students, the effects of mathematics anxiety may go beyond their own academic performance. Their future role as teachers makes this issue even more important. Ramirez et al. (2018) discovered that teachers who experience mathematics anxiety may unintentionally show discomfort in their teaching, which can affect students' attitudes and performance in mathematics. In addition, teachers who experience mathematics anxiety may struggle to explain mathematical ideas clearly, which may limit students' understanding of important concepts (Ramirez et al., 2018). These findings underscore the essential importance of addressing mathematics anxiety among freshman College of Education students to prevent its enduring effects on teaching effectiveness.

Various intervention strategies have been explored to reduce the impact of mathematics anxiety, particularly among education students. Ramirez et al. (2018) demonstrated that interventions targeting students' emotional responses, including expressive writing and mindfulness-based strategies, can effectively reduce mathematics anxiety and improve performance. Likewise, cognitive-behavioral and emotion-focused interventions have been demonstrated to effectively reduce mathematics anxiety and enhance learning outcomes (Sammallahti et al., 2023). In particular, limited studies have focused on freshman College of Education students at Eastern Samar State University – Salcedo Campus, especially during their critical transition to college-level mathematics. Understanding this context may provide valuable insights into the factors influencing mathematics anxiety and academic performance among future educators.

Therefore, this study aimed to determine the level of mathematics anxiety and the academic performance of freshman College of Education students at Eastern Samar State University – Salcedo Campus for the School Year 2024–2025. Specifically, it sought to answer the following questions: (1) What is the demographic profile of the respondents in terms of age, sex, civil status, and program? (2) What is the level of mathematics anxiety of the respondents in learning mathematics? (3) What is the academic performance of the respondents in mathematics? (4) Is there a significant difference in the level of mathematics anxiety of the respondents when grouped according to their demographic profile? (5) Is there a significant difference in the academic performance of the respondents when grouped according to their demographic profile?; and (6) Is there a significant relationship between the level of mathematics anxiety and the academic performance of the respondents in mathematics?

2. Methodology

A descriptive–comparative and correlational research design was employed in this study. The study was descriptive as it described the freshman College of Education students in terms of their demographic profile, level of mathematics anxiety, and academic performance in mathematics. It was also comparative since significant differences in the level of mathematics anxiety and academic performance were examined when the respondents were grouped according to their demographic profile, such as age, sex, civil status, and program. Likewise, the study was correlational as it determined the relationship between mathematics anxiety and academic performance. The respondents of the study consisted of ninety-eight (N = 86) freshman students enrolled in the College of Education at Eastern Samar State University – Salcedo Campus during the second semester of the Academic Year 2024–2025. A complete enumeration sampling method was utilized since the population size was relatively small.

To gather the necessary data, a survey questionnaire consisting of two parts was utilized. Part I determined the demographic profile of the respondents, including age, sex, civil status, program, and their final grade in Mathematics in the Modern World. Part II measured the level of mathematics anxiety using the Revised Mathematics Anxiety Rating Scale (RMARS) developed by Plake and Parker (1982), which consists

of 24 items rated using a 5-point Likert scale ranging from 1 (Not at all) to 5 (Very much), where higher scores indicate higher levels of mathematics anxiety. Academic performance data were obtained from institutional records of students' grades in Mathematics in the Modern World. Prior to data collection, permission was secured from the Campus Administrator and the Dean of the College of Education of Eastern Samar State University – Salcedo Campus, and ethical considerations such as informed consent, confidentiality, and anonymity were strictly observed.

Moreover, the collected data were analyzed using both descriptive and inferential statistical tools. Frequency, percentage, and mean were used to describe the demographic profile of the respondents, their level of mathematics anxiety, and academic performance. For inferential statistics, Analysis of Variance (ANOVA) and an independent samples t-test were used to determine significant differences in mathematics anxiety when grouped according to demographic variables, while the Kruskal–Wallis H test and Mann–Whitney U test were used to examine differences in academic performance. Spearman's Rank Correlation Coefficient was used to determine the relationship between mathematics anxiety and academic performance. The level of significance was set at 0.05.

3. Results and Discussion

3.1 Demographic Profile of the Respondents

This study looked at the demographic profile of freshman College of Education students at Eastern Samar State University – Salcedo Campus, as shown in Tables 1 to 4.

Table 1
Age Distribution of Freshman College of Education Students in Eastern Samar State University – Salcedo Campus

Age	Frequency	Percent
18 years old and below	21	24.4%
19 – 20 years old	55	64.0%
21 – 22 years old	4	4.7%
23 years old and above	6	7.0%
Total	**86**	**100.0%**

Of the 86 respondents, 55 (64.0%) fall within the 19–20 age range, followed by 21 (24.4%) aged 18 or younger. Meanwhile, 6 or 7.0% are aged 23 and above, and only 4 or 4.7% fall within the 21–22 age bracket. This distribution suggests that most first-year students are in late adolescence and likely transitioned directly from senior high school. Younger students struggled more with academic stress due to limited coping experience. Ramirez et al. (2018) noted that students in early college are more prone to math anxiety when faced with high academic demands. Similarly, Balt et al. (2022) emphasized the importance of early interventions during transitional periods to help reduce anxiety and support academic adjustment.

Table 2
Sex Distribution of the Respondents

Sex	Frequency	Percent
Male	19	22.1%

Female	67	77.9%
Total	**86**	**100.0%**

Female students make up the majority of respondents, with 77.9% and 212.11% being male, suggesting an imbalanced approach to teacher education among females. This trend is consistent with both national and global trends, as women have historically dominated teaching. Women have been a significant part of K-12 education in the Philippines since 2015, as indicated by government data (CPD for 2025). At the pre-primary, primary, and lower secondary levels, women constitute the majority of teachers worldwide. In 2021, the OECD stated that women would make up 70% of teachers across all levels of education, with the highest percentages in pre-primary (96%) and primary (82%) education.

Since research shows that females often report higher levels of math anxiety, this gender imbalance may affect the overall pattern of math anxiety in the group. Studies from 2015 to 2025 consistently find that females report more math anxiety than males. For example, Van Mier et al. (2019) found that math anxiety affects female students' arithmetic performance more than it does for males. Even when actual performance is similar, females often feel more anxious about math, so this gender difference is important to keep in mind when looking at the study's results.

Table 3
Civil Status Distribution of the Respondents

Civil Status	Frequency	Percent
Single	86	100.0%
Total	**86**	**100.0%**

All 86 students in the study are single, likely because most are teenagers or in their early twenties and just beginning college. While being single may allow students more time for academics, research shows it does not shield them from educational stress or anxiety. For example, Foley et al. (2017) found that math anxiety impairs students' thinking and performance, regardless of relationship status. Similarly, Patkin and Greenstein (2020) reported that current and future teachers experience math anxiety, affecting their teaching confidence regardless of personal circumstances.

Table 4
Program Enrolled the Respondents

Program	Frequency	Percent
BEEd	38	44.2%
BSEd – Math	8	9.3%
BSEd – Science	10	11.6%
BSEd – English	12	14.0%
BTLEd	13	15.1%
BECEd	5	5.8%
Total	**86**	**100.0%**

The data show that 38 students (44.2%) are enrolled in the Bachelor of Elementary Education (BEEd), 13 (15.1%) in the Bachelor of Technology and Livelihood Education (BTLED), 12 (14.0%) in the Bachelor of Secondary Education (BSEd) – English, 10 (11.6%) in BSEd – Science, 8 (9.3%) in BSEd – Mathematics, and 5 (5.8%) in the Bachelor of Early Childhood Education (BECEd). These figures suggest most students favor general or less math-intensive programs. The low enrollment in BSEd – Mathematics and

BECEd may reflect avoidance of math-focused specializations, a trend noted in research on mathematics anxiety and program selection. Studies by Eidlin-Levy et al. (2023) and DigitalEd (2025) report that mathematics anxiety is linked to avoidance of math-related courses and may hinder academic achievement, thereby clarifying the connection between the data and the cited research.

3.2 Mathematics Anxiety of the Respondents

This study measured the math anxiety levels of freshman College of Education students using the Revised Mathematics Anxiety Rating Scale (RMARS), which covers 24 common academic situations involving math.

Table 5
Level of Mathematics Anxiety of the Respondents

No.	Statement	Mean	SD	Interpretation
1	Buying a math textbook	1.98	0.96	Low Anxiety
2	Watching a teacher work an algebraic equation on the blackboard	2.81	1.13	Average Anxiety
3	Signing up for a math course	2.45	1.21	Low Anxiety
4	Listening to another student explain a math formula	3.14	1.13	Average Anxiety
5	Walking into a math class	2.69	1.11	Average Anxiety
6	Looking through the pages of a math textbook	2.76	0.88	Average Anxiety
7	Starting a new chapter in a math book	2.55	0.89	Average Anxiety
8	Walking on campus and thinking about a math course	2.57	1.09	Average Anxiety
9	Hearing the word 'statistics'	3.15	1.06	Average Anxiety
10	Solving a square root problem	3.02	1.10	Average Anxiety
11	Reading and interpreting graphs or charts	3.06	1.09	Average Anxiety
12	Reading a formula in a chemistry class	3.07	1.09	Average Anxiety
13	Taking an examination (quiz) in a math course	3.29	1.12	Average Anxiety
14	Taking a final examination in a math course	3.27	1.29	Average Anxiety
15	Working on an abstract mathematical problem (e.g., calculating leftover income from bills and earnings)	2.90	1.17	Average Anxiety
16	Picking up the math textbook to begin working on a homework assignment	2.78	1.07	Average Anxiety
17	Being given a homework assignment of many difficult problems due next class	3.09	1.09	Average Anxiety
18	Waiting to get a math test returned in which you expected to do poorly	3.02	1.07	Average Anxiety
19	Getting ready to study for a math test	3.12	1.11	Average Anxiety
20	Listening to a lecture in a math class	3.15	1.20	Average Anxiety
21	Being given a 'pop' quiz in a math class	3.03	1.07	Average Anxiety
22	Having to use the tables in the back of a math book	2.80	0.94	Average Anxiety
23	Being told how to interpret probability statements	3.03	1.11	Average Anxiety
24	Trying to understand a line or bar graph	3.26	1.16	Average Anxiety
	Composite Mean	2.92	0.62	Average Anxiety

Table 5 shows that freshman College of Education students had an average level of math anxiety, with a composite mean of 2.92 (SD = 0.62). This means they were not highly anxious, but still felt some discomfort in many math-related situations, especially when being tested or solving problems.

Anxiety was higher when students had to participate in or prepare for assessments. These included quizzes, major exams, and unannounced tests. Mean scores ranged from 3.03 to 3.29, with standard deviations

from 1.07 to 1.20. Such situations often provoke apprehension from performance pressure, fear of failure, or low math confidence. Students also reported greater anxiety when working with graphs and formulas. This may be due to the abstract and complex nature of these tasks.

In contrast, students felt less anxiety in passive or familiar situations. These include buying textbooks or enrolling in courses. In these cases, immediate performance or comprehension is not required. The lower mean scores ($\bar{x}$ = 1.98, SD = 0.96) show students are more comfortable in non-threatening academic contexts.

This pattern aligns with previous studies. Ramirez et al. (2018) and Skagerlund et al. (2019) found that mathematics anxiety can impair working memory, increasing the difficulty of solving problems. Mammarella et al. (2021) demonstrated that anxiety reduces mental efficiency and prompts students to avoid challenging tasks in high-stress academic settings.

The moderate level of anxiety seen in future teachers is concerning. Research shows that ignoring mathematics anxiety can hurt teaching readiness and student achievement (Khasawneh et al., 2021). This is supported by Ramirez et al. (2018), who discovered that teachers' mathematics anxiety is is linked to lower student achievement and reduced teaching effectiveness. If left unaddressed, mathematics anxiety may negatively impact both teaching preparedness and student learning outcomes. Educational institutions should provide support, such as mindfulness training, cognitive-behavioral techniques, and more cooperative learning, to reduce anxiety and boost confidence.

3.3 Academic Performance in Mathematics of Freshman College of Education Students in Eastern Samar State University – Salcedo Campus

After examining students' math anxiety levels, the study also assessed their academic performance to determine whether their feelings about math affected their grades. Academic performance was measured using students' final grades in "Mathematics in the Modern World," obtained from the registrar's office with permission.

Table 6
Level of Academic Performance of the Respondents

Academic Performance	Interpretation	Frequency	Percentage
3.1 – below	Conditional	3	3.50
2.6–3.0	Fair	56	65.10
2.1–2.5	Good	19	22.10
1.6–2.0	Very Good	8	9.30
Total		**86**	**100.00**

As shown in Table 6, most freshman College of Education students at Eastern Samar State University – Salcedo Campus perform at a "Fair" level in mathematics, with 65.1% falling within the 2.6–3.0 GPA range. Only 31.4% of students achieved a "Good" to "Very Good" rating, while a small minority (3.5%) performed "Conditional." This distribution suggests most students meet minimum expectations in mathematics, but few excel, and a few are already at risk of academic failure.

This trend reflects challenges in the transition to college-level mathematics. Yang et al. (2021) emphasized that academic performance in math is significantly influenced by teacher support, student engagement, and self-efficacy. Similarly, Toven-Lindsey et al. (2015) found that structured academic support, such as tutoring, peer mentoring, and study groups, can improve academic persistence and performance, especially in math-related courses.

These findings highlight the need for early, targeted academic support, such as tutoring and peer

mentoring, to help students strengthen their math skills and increase the proportion achieving good or very good performance.

3.4 Difference of the Respondents' Level of Mathematics Anxiety

This study also examined whether there are significant differences in levels of mathematics anxiety among freshman College of Education Students when grouped by demographic characteristics, such as age, sex, and program**.**

Table 7
Difference of the Respondent's Level of Mathematics Anxiety when grouped according to Age

Age Group	n	Mean	ANOVA	p-value	Decision	Remark
18 years old and below	21	3.043	0.403	0.751	Fail to reject H_0	Not Significant
19 – 20 years old	55	2.874				
21 – 22 years old	4	2.825				
23 years old and above	6	2.925				

Age and Level of Mathematics Anxiety. As shown in Table 7, a one-way ANOVA was conducted to examine differences in mathematics anxiety levels among students grouped by age. The analysis yielded an F-value of 0.403 and a significance level ($p = 0.751$), which is greater than the standard alpha level of 0.05. Therefore, the null hypothesis is retained, indicating that there is no statistically significant difference in mathematics anxiety across age groups among the respondents.

This suggests that math anxiety levels are similar for students of all ages, so both younger and older freshman may feel the same way about math tasks. This may be because they all face similar challenges, like adjusting to college expectations, teaching styles, and new environments.

These findings are supported by Karjanto and Yong (2015), who found no significant correlation between math test anxiety and students' age among early undergraduates. The study emphasized that factors such as classroom environment, instructor support, and self-expectations play a more central role than age in predicting anxiety levels. Similarly, Chen et al. (2023) reported that anxiety-related behaviors appear early in schooling and persist unless properly addressed, regardless of students' age.

In contrast, Namkung, Peng, and Lin (2019) found age-related patterns in math anxiety across a broader developmental range (from elementary to high school). However, in a more age-homogeneous population, such as college freshman, the influence of age may naturally narrow.

This means that educators and program developers should use support strategies that help all students, not just those in certain age groups. Efforts to reduce math anxiety, like building self-confidence, offering emotional support, and improving teaching methods, should be available to everyone.

Table 8
Difference of the Respondent's Level of Mathematics Anxiety when grouped according to Sex

Sex	n	Mean	t	df	p-value	Decision	Remark
Male	19	2.770	1.171	84	0.245	Fail to reject H_0	Not Significant
Female	67	2.958					

Sex and Level of Mathematics Anxiety. As shown in Table 8, an independent samples t-test was used to determine whether there is a significant difference in the level of mathematics anxiety between male and female freshman College of Education students. The mean mathematics anxiety score for male students

was 2.770, while for female students it was 2.958. The computed t-value was 1.171, with 84 degrees of freedom, and a corresponding p-value of 0.245. Since the p-value is greater than 0.05, the result is not statistically significant; therefore, the null hypothesis is retained. This indicates that there was no significant difference in mathematics anxiety between male and female students in this sample.

Although many studies report higher math anxiety in females, this study found no significant difference between males and females. This suggests that both groups may be equally affected by similar academic and school challenges. One reason could be that all students face the same curriculum and classroom experiences, leading to similar anxiety levels.

This finding is consistent with Barroso et al. (2021), who found that while females often report slightly higher math anxiety than males, the difference is typically small and not always statistically significant, especially when environmental and instructional factors are held constant. Similarly, Zhang et al. (2019) noted that the strength of gender differences in anxiety may vary depending on the population and context studied, and Chen et al. (2023) suggested that behavioral symptoms of anxiety do not always align with sex-based expectations, particularly in younger learners and early college students.

These findings suggest that gender-neutral approaches may work well for addressing math anxiety in first-year college students. Educators should use inclusive practices that help all students, focusing on reducing anxiety, giving helpful feedback, and building skills without assuming certain groups are more at risk.

Table 9

Difference of the Respondent's Level of Mathematics Anxiety when grouped according to Program Enrolled

Program	n	Mean	ANOVA	p-value	Decision	Remark
BEEd	38	3.086	1.546	0.185	Fail to reject H_0	Not Significant
BSEd- Math	8	2.578				
BSEd- Science	10	2.753				
BSEd- English	12	2.803				
BTLEd	13	2.783				
BECEd	5	3.110				

Program and Level of Mathematics Anxiety. As presented in Table 9, a one-way ANOVA was conducted to determine whether there is a significant difference in levels of mathematics anxiety among freshman teacher education students when grouped by academic program. The test yielded an F-value of 1.546 and a p-value of 0.185. Since the p-value is greater than 0.05, the result is not statistically significant, and the null hypothesis is retained. This means there was no significant difference in mathematics anxiety among students across academic programs in this sample.

Even though programs focus on different subjects, the lack of significant differences indicates that math anxiety is common among all students, regardless of their major. This suggests that anxiety may stem from shared academic factors, such as limited math experience, teaching methods, or a general fear of math, rather than from the specific content of each program (Carey et al., 2016; Ramirez et al., 2018).

This finding is consistent with the observations of Barroso et al. (2021) and Chen et al. (2023), who emphasized that math anxiety can be widespread among students across academic tracks, especially during transitional periods such as the first year of college. Similarly, Karjanto and Yong (2015) found that even students in non-math-focused programs reported moderate to high levels of anxiety, indicating that program content alone may not predict anxiety levels.

Zhang et al. (2019) also pointed out that factors such as past math experiences, support systems, and personal confidence matter more for anxiety than a student's field of study. This means that efforts to reduce math anxiety should be offered to students in all programs, not just those with a lot of math. Support services, workshops, and improved teaching methods can help students across disciplines.

3.5 Difference of the Respondents' Level of Academic Performance

This part of the study examined whether there were significant differences in the academic performance of freshman teacher education students when grouped by age, sex, and academic program.

Table 10
Difference of the Respondent's Level of Academic Performance when grouped according to Age

Age Group	n	Median	Computed H	p-value	Decision	Remark
18 years old and below	21	2.60	4.744	0.192	Fail to reject H_0	Not Significant
19 – 20 years old	55	2.80				
21 – 22 years old	4	2.70				
23 years old and above	6	2.50				

Age and Academic Performance. Table 10 shows that the Kruskal-Wallis H test (H = 4.744, p = 0.192) found no significant difference in math performance between age groups. However, the median GPA scores show a slight trend: students aged 23 and above had a GPA of 2.50 (good), those aged 19–20 had 2.80 (fair), and students aged 21–22 and 18 and below had median GPA scores of 2.70 and 2.60, respectively.

Even though the differences are not statistically significant, the results suggest that older students may perform slightly better, possibly because they are more mature and motivated, and have better study habits. Barnes & Noble College (2016) and Whisnant (2022) found that older students often exhibit greater discipline and persistence, which can lead to better academic outcomes.

This suggests that giving younger students support programs that teach good study habits and self-management could help close performance gaps and improve overall achievement.

Table 11
Difference of the Respondent's Level of Academic Performance when grouped according to Sex

Sex	n	Median	Computed U	p-value	Decision	Remark
Male	19	2.40	891.500	0.008	Reject H_0	Significant
Female	67	2.80				

Sex and Academic Performance. Table 11 shows that the Mann-Whitney U test (U = 891.500, p = 0.008) found a significant difference in math performance between males and females. Male students had a median GPA of 2.40, while female students had 2.80. Since lower GPAs mean better performance, male students did better in math than female students.

This outcome aligns with several contemporary studies. A meta-analysis by Giofrè et al. (2020) found that boys often outperform girls in standardized math tests, particularly at higher achievement levels. Similarly, research by Guez et al. (2020b) highlights that test format and evaluation type, such as high-stakes standardized assessments, can favor male students, resulting in better performance among them. Additionally, Luo and Chen (2024) demonstrated that deeply held math-gender stereotypes can selectively enhance male students' performance while undermining female students' performance.

Table 12
Difference of the Respondent's Level of Academic Performance when grouped according to Program Enrolled

Program	n	Median	Computed H	p-value	Decision	Remark
BEEd	38	2.90				
BSEd – Math	8	2.35				
BSEd – Science	10	2.40	20.513	0.001	Reject H_0	Significant
BSEd – English	12	2.50				
BTLEd	13	2.90				
BECEd	5	2.80				

Program and Academic Performance. Table 12 shows that students in BSEd–Mathematics and BSEd–Science had lower median GPAs (2.35 and 2.40), which means better performance. Students in BEEd and BTLEd had a higher median GPA (2.90), indicating fair performance.

A Kruskal-Wallis H test was used to assess whether there were significant differences in math performance among students across programs. The test gave an H value of 20.513 and a p-value of 0.001. Since the p-value is less than 0.05, the difference in performance across programs is statistically significant.

These findings suggest that program alignment with mathematical content, prior exposure, and learner confidence may contribute to differences in performance. Zhao et al. (2023) emphasized the importance of self-directed learning tools for students in academically demanding environments, while Walters and Munro (2017) noted that academic maturity and preparedness often predict success across disciplines. Furthermore, Nichols (2019) found that educational outcomes are influenced not just by program content but also by how well students are supported based on their learning profiles and needs.

These findings suggest that math performance depends not just on individual effort, but also on the structure and focus of the academic program. Students in programs with more math content tend to do better, likely because they are better prepared and more engaged. This shows the importance of offering support to students in general or less math-focused programs.

3.6 Correlation Between the Respondents Levels of Mathematics Anxiety and Academic Performance

This part of the study looked at whether there is a significant relationship between math anxiety and academic performance among freshman teacher education students. The researchers used Spearman's rank-order correlation to measure the link between the two, testing for significance at the 0.05 level. The results are shown in Table 13.

Table 13
Correlation Between Mathematics Anxiety and Academic Performance of the Respondents

Variables Correlated	r_s	p-value	Decision	Remark	Coefficient of Determination
Math Anxiety and Academic Performance	-0.066	0.546	Fail to Reject Ho	Not Significant	0.0044

Note: Interpretation of correlation (r_s): ± (0.80 – 1.00) Very Strong, ± (0.60 – 0.79) Strong, ± (0.40 – 0.59) Moderate, ± (0.20 – 0.39) Weak, ± (0.00 – 0.19) Very Weak

Table 13 shows that the Spearman rank correlation between math anxiety and academic performance is $r_s = –0.066$, with a p-value of 0.546. This means there is a very weak negative relationship, and since the p-value is above 0.05, it is not statistically significant. In other words, there is no significant link between math anxiety and academic performance in this group.

The coefficient of determination ($r^2 = 0.0044$) indicates that only 0.44% of the variation in academic performance is explained by math anxiety. This means that, in this sample, anxiety does not have a big effect on grades. Students might be using coping strategies or getting support in class that helps reduce the impact of anxiety on their performance.

This finding contrasts with the results of Namkung et al. (2019) and Barroso et al. (2021), who reported moderate-to-strong negative correlations between math anxiety and performance across age groups and cultures. Similarly, Zhang et al. (2019) emphasized the significant detrimental effect of anxiety on mathematical achievement, particularly in problem-solving contexts. However, the present result is more aligned with the findings of Karjanto and Yong (2015), who reported no significant correlation between test anxiety and academic performance in a Malaysian university setting, and Chen et al. (2023), who argued that while behavioral symptoms of math anxiety are visible, they do not always translate into lower grades.

This suggests that simply reducing math anxiety may not be enough to improve academic performance. A more complete approach that includes emotional, cognitive, and instructional support is needed. Future research could look at other factors like resilience, teacher feedback, study habits, and learning environments to better understand how anxiety affects math learning.

4. Conclusion and Recommendation

The researcher discovered that first-year students at the College of Education at Eastern Samar State University – Salcedo Campus are mostly female, aged 19 to 20 years, single, and mainly enrolled in the Bachelor of Elementary Education (BEEd) program. They exhibited an average level of mathematics anxiety, particularly in tasks requiring hands-on performance or involving abstract concepts. Their academic achievement in the course Mathematics in the Modern World was generally rated as fair. Mathematics anxiety levels did not significantly differ based on age, sex, or academic program. However, academic performance showed notable differences by sex and program: male students scored higher, as did students in the Bachelor of Secondary Education (BSEd) programs in Mathematics (BSEd Math) and Science (BSEd Science). Additionally, the correlation between mathematics anxiety and academic performance was very weak and not statistically significant.

Based on these findings, the researcher recommends that the university implement preparatory courses to strengthen fundamental math skills, create supportive learning environments to boost student confidence, expand academic support through structured tutoring and review sessions, and provide targeted interventions for students with lower achievement outcomes. Future efforts should focus on both emotional factors related to math anxiety and skill development, guided by the Cognitive Interference Theory and Deficit Theories. Additional research is also recommended to explore other factors such as self-efficacy beliefs, study habits, and the long-term effects on students' learning outcomes and overall well-being.

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