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Correlation of Numerical Anxiety and Mathematics Performance

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Abstract - *It has been observed that most students had negative view towards mathematics and as a result, they also performed poorly.As such, it is imperative for every math teacher to understand the reasons behind this negative view to improve their student's performance. This observation led the researcher to conduct a study on Correlation of Mathematics Performance and Anxiety of third and fourth year students for school year 2012-2013 across the different programs.This study determined the numerical anxiety level and mathematics performance of the respondents along age, gender and programs. The study revealed that students, regardless of age had passing performance. However, female and male students had fair and passing mathematics performance, respectively. Students from College of Business Education, Teacher Education and Computer Studies had fair performance while those from Marine Transportation, Criminal Justice Education and Engineering had passing performance. The study also revealed that students across different variables had moderate numerical anxiety level. Furthermore, it was found out that mathematics performance is significantly related to numerical anxiety. However, the relationship was inverse and small.*

Keywords: *numerical anxiety, numerically-anxious, mathematics performance*

INTRODUCTION

Mathematics is often viewed by students as one of the most abstract and conceptually difficult subjects. In spite of the important role of mathematics, students have been shown to have motivational difficulties when studying the subject.

Numerical anxiety is a feeling of tension, apprehension, or fear that interferes with mathematics performance like manipulation of numbers and the solving of mathematical problems in both everyday life and academic situations [1]. Anybody can have this and perhaps, most students have this. The causes of numerical anxiety fall within three major factors: dispositional, situational, and environmental. The dispositional factors deal with psychological and emotional features such as attitudes towards mathematics, self-concept, and learning styles. The self-concept refers to students' perception of their own ability to perform well in mathematics and to learn new topics. The situational factors are direct features that result from their particular mathematics courses: the nature of the course and how it is designed and carried out; the availability of or conversely lack of feedback; the pace of instruction, etc. The environmental factors are characteristics that affected the students prior to their mathematics course: for example, age, gender, academic major, and previous mathematics experience.

Numerically-anxious students complain of such things as nervousness, inability to concentrate, a blank mind, and a feeling of sickness when they are confronted with taking a mathematics test. Other symptoms include panic, paranoia, passive behavior, and lack of confidence. When confronted with a mathematics problem, numerically anxious student has sweaty palms, is nauseous, has heart palpitations, and experiences paralysis of thought.

The effects of numerical anxiety are quite real. Recent studies have shown that numerical anxiety has an actual effect on the brain's functions that negatively impacts the ability to complete mathematics tasks. This is not surprising as most of people intuitively know that when one is feeling afraid or intensely nervous or frustrated he tends to have a hard time concentrating.

Numerical anxiety can lead to negative outcomes such as avoidance of college mathematics courses and majors or avoidance of careers that involve frequent mathematics use [1]. For these reasons, additional research on the implications of numerical anxiety and the cognitive mechanisms associated with numerical anxiety is essential.

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Numerical anxiety has been a prevalent concern among educators and others in our society for decades. Some students tend to be more anxious about the testing process and can often freeze up, others just cringe when they are confronted with any form of computational exercise, or others dread taking math classes which can occur in the elementary, high school, and even at the college levels.

Research has shown relationships between numerical anxiety and achievement, between numerical anxiety and gender, and between numerical anxiety and age. A negative relationship between numerical anxiety and mathematics achievement has been found across all grade levels [2].While there is little doubt that there is a connection between numerical anxiety and poor mathematical performance, the direction and nature of this connection is less clear.

Given that numerical anxiety can hinder performance even for individuals with high aptitude, it is important to investigate the extent to which numerical anxiety affects the performance of the students.

As a mathematics teacher, it has been observed that most students had negative view towards mathematics. Oftentimes one can see students uninterested about the subject and in turn they keep on complaining that mathematics is such a very difficult subject. Such attitude is often reflected during mathematics test wherein most students had either passing or below passing scores.

Students could still improve their mathematics performance. However, it is a must for every mathematics teacher to understand the reasons why most students are uninterested about mathematics. It is for this reason that the study was conducted.

OBJECTIVES OF THE STUDY

This study focused on the relationship of numerical anxiety and mathematics performance. Specifically, the research aimed to determine the performance level of the students in mathematics and evaluate the anxiety level of the students according to age, gender, and programs/degree and determine whether significant relationships exist between the performance level of students and their level of anxiety.

METHOD
Research Design

This study made use of descriptive-correlational research design. However this study is also non-experimental. According to Fraenkel and Wallen [3] descriptive-correlational research design describes an existing relationship between variables and seeks to clarify an understanding of an important phenomena by identifying relationships among variables.

In this study, relationship between numerical anxiety and mathematics performance was examined. Thus, descriptive-correlational design was deemed most appropriate because it describes the relationships of the two quantitative variables.

Subjects of the Study

This study was conducted at Panpacific University North Philippines. Third and fourth year students of first semester academic year 2012-2013, who have taken both College Algebra and Trigonometry subjects across different programs were the respondents of this study. Students in those year levels are the only possible respondents since the Maritime students take Trigonometry subject in their second year. Sample was computed using the Slovin's formula at 5% margin of error. Among one thousand four hundred eighty two (1,482) students, three hundred fifteen (315) were randomly chosen as respondents. Stratified proportional sampling was then used to identify the number of respondents per program.

Instrument

To identify the anxiety level of the respondents, the 14-item bi-dimensional Numerical anxiety Scale – Revised (MAS-R) was adapted and modified. The modified math anxiety scale contains 19 indicators of numerical anxiety.

The questionnaire was submitted to four competent people in the field of mathematics. The weighted mean of 4.61 out of 5.00 indicated that the questionnaire is highly valid in terms of content validity.

Procedure

The researcher asked permission from the President and the Deans of the different programs to administer the survey questionnaire. Distribution was personally conducted by the researcher. The researcher also asked the permission of the University Registrar for the grades of the respondents in College Algebra and Trigonometry.

Data Analysis

To obtain the validity and reliability of results of the study, appropriate statistical tools were used.

To determine the level of performance of the respondents, their grades for College Algebra and Trigonometry were used. In interpreting the computed grades of students, the researcher used the numerical and descriptive rating shown below based on the University's grading policy as guide.

The set of limits is given for the PUNP's Numerical and Descriptive Rating for Mathematics Performance: 95% and above: Excellent; 90% to 94.99%: Very Satisfactory; 85% to 89.99%: Satisfactory; 80% to 84.99%: Fair; 75% to 79.99%: Passing; and 74.99% and lower: Failed

To determine the level of anxiety of the respondents, weighted mean of the modified MAS-R was used. Responses are made on a 5 point scale. For negative-affect items low scores indicate high anxiety. Reverse coded items include positive-affect items were reversed for scoring so that a high score indicates high anxiety. Weighted means were then interpreted using the following pre-set criteria: 4.21 - 5.00: Very High Anxiety (VHA); 3.41 – 4.20: High Anxiety (HA); 2.61 – 3.40: Moderate Anxiety (MA); 1.81 – 2.60: Low Anxiety (LA); and 1.00 – 1.80: Very Low Anxiety (VLA).

To identify the relationships between numerical anxiety and mathematics performance, the Pearson Product Moment Correlation Coefficient (r) was used.

RESULTS AND DISCUSSION

The following tables present the mathematics performance of the respondents according to age, gender and programs.

Considering the overall mean, Table 1 reveals that the students had a passing performance in all age brackets. This means that students met the passing requirements necessary for the course.

It can also be noted from Table 1 that students in the age bracket of 15 to 17 had fair performance, while those in the other age brackets had passing performance for college algebra. However, in Trigonometry, students in the age bracket of 21 to 23 had fair performance while those in the other age brackets had passing performance. Clearly, it can be observed that there were no trends in the mathematics performance of the students according to age. This means that age is not related to mathematics performance.

This finding conforms to the study of Watts [4] that age is not a factor in mathematics performance.

Table 2 presents the mathematics performance of the respondents according to gender. For both subjects, females had fair performance while males had a passing performance.

Considering the overall mean, males had passing performance as reflected by their mean grade of 79.05. This means that males met only the passing requirements for the course. However, females had fair performance as indicated by their overall mean of 80.78. This implies that female showed mastery of the subject matter that is above the passing standard.

It can be inferred then that females perform better than males for both subjects. This finding negates the findings of Devine [4] in her study on "Gender Differences in Numerical anxiety and the Relation to Mathematics Performance while Controlling for Test Anxiety" (2012) wherein it was cited that no gender differences emerged in their mathematics performance. Moreover, it also negates the findings of Watts [5] which states that gender does not significantly predict mathematics performance.

Table 1: Mathematics Performance of the Respondents According to Age

	Algebra		Trigonometry		Overall	
Age	Mean Grade	VI	Mean Grade	VI	Mean Grade	VI
15 – 17	80.07	Fair	79.67	Passing	79.87	Passing
18 – 20	79.31	Passing	78.40	Passing	78.86	Passing
21 – 23	78.50	Passing	81.17	Fair	79.84	Passing

Table 2: Mathematics Performance of the Respondents According to Gender

	Algebra		Trigonometry		Overall	
Age	Mean Grade	VI	Mean Grade	VI	Mean Grade	VI
Male	79.19	Passing	78.9	Passing	79.05	Passing
Female	81.13	Fair	80.42	Fair	80.78	Fair

Table 3: Mathematics Performance of the Respondents Across Programs

Programs	Algebra		Trigonometry		Overall	
	Mean Grade	VI	Mean Grade	VI	Mean Grade	VI
Business Education	82.83	Fair	81.09	Fair	82.47	Fair
Computer Studies	80.65	Fair	79.65	Passing	80.15	Fair
Criminal Justice Education	78.28	Passing	77.65	Passing	77.97	Passing
Engineering	77.00	Passing	78.78	Passing	77.89	Passing
Marine Transportation	79.06	Passing	78.44	Passing	78.75	Passing
Teacher Education	81.21	Fair	81.48	Fair	81.35	Fair

Table 3 presents the mathematics performance of the students across programs. The table reveals that students from the Business Education, Teacher Education and Computer Studies had fair performance in Algebra while students from the other departments had passing performance. With respect to the students' performance in Trigonometry, students from Teacher Education and Business Education had fair performance while those from the other programs had passing performance. Over all, it can be noted that only three programs had fair performance while the other three had passing performance.

The table further reveals the ranking of the programs in terms of their mathematics performance. It can be gleaned from the table that Business Education students ranked first with the overall mean grade of 82.47 while those from the Engineering programs ranked sixth with an overall mean grade of 77.89. It is not surprising to note that Business Education students had fair performance which is above the passing requirement to pass the course since it is a mathematics-related program. On the contrary, the performance of the students from Engineering programs seemed different because they only had passing performance. Considering that Engineering is a mathematics-related program, it is assumed that students are inclined in mathematics and should therefore perform better in mathematics.

In an interview with Engr. Erlinda Laguardia, Dean of the College of Engineering, she pointed out that the approach for the engineering students is stricter as compared to the other department. She also stressed out that those students who had failing grades were the ones who are not doing their assigned problem sets and eventually shift course after the term.

In the study of Leppavirta [6], she cited a national survey conducted in Finnish Engineering Universities in 2005 to 2007 wherein 36% of the students perceived that mathematics course as an obstacle to their progress in Engineering studies. Similar research carried out at Helsinki University of Technology revealed that 27% to 36% of freshmen failed to complete the required pre-engineering mathematics courses after the first year.

Numerical anxiety is tremendously a common phenomenon among college students today. When confronted with mathematics problems, students having sweaty palms, nausea, heart palpitations, and experience paralysis of thought may be suffering from numerical anxiety. However, not all college students experience this kind of anxiety. Some of the students suffer anxiety in other form. Generally, students having negative attitude towards mathematics may be suffering numerical anxiety.

Table 4 presents the numerical anxiety of the respondents along age. Students in the age bracket of 15-17 get tense during mathematics test and find mathematics challenging as reflected in the weighted means of 3.50 and 4.10, respectively. However, they also showed low anxiety level in some items. Students in this age bracket also considered mathematics as one of the most important subjects to study and a useful subject in their future as reflected in its weighted means of 1.98 and 1.9, respectively.

The study further reveals that students in the age bracket 18-20 also had high anxiety levels because they find Mathematics challenging and get tense during Mathematics test as reflected by weighted means of 3.98 and 3.56, respectively. However, they had low anxiety levels when they considered mathematics useful for their future and relevant to their lives as reflected by weighted means of 1.98 and 2.46, respectively.

Table 4: Numerical Anxiety Level of the Respondents According to Age

		15-17 WM-DE	18-20 WM-DE	21-23 WM-DE
1	I find mathematics interesting.	2.48-MA	2.52-LA	2.83-MA
2	I get tense during mathematics test.	3.50-MA	3.56-HA	3.00-MA
3	I think that I can use mathematics in the future.	1.98-LA	1.98-LA	2.33-LA
4	My mind goes blank and I am unable to think clearly when doing mathematics test.	2.92-MA	3.00-MA	3.00-MA
5	Mathematics relates to my life.	2.51-LA	2.46-LA	2.67-LA
6	I worry about my ability to solve mathematics problems.	3.17-MA	3.22-MA	3.67-MA
7	I feel anxious when I try to do mathematics problems.	3.16-MA	3.17-MA	3.00-MA
8	I find mathematics challenging.	4.10-HA	3.98-HA	3.33-MA
9	Mathematics makes me feel nervous.	3.39-MA	3.13-MA	3.00-MA
10	I would like to take more mathematics classes.	3.12-MA	2.89-MA	3.00-MA
11	Mathematics makes me feel uneasy.	3.30-MA	3.04-MA	3.33-MA
12	Mathematics is one of my favorite subjects.	2.98-MA	3.11-MA	3.50-MA
13	I enjoy learning mathematics.	2.62-MA	2.76-MA	2.50-LA
14	Mathematics makes me feel confused.	3.26-MA	3.13-MA	3.17-HA
15	Mathematics doesn't scare me at all.	3.12-MA	3.15-MA	3.00-MA
16	For some reason, even though I study hard, Mathematics seems unusually hard for me.	3.34-MA	3.41-HA	3.33-MA
17	I worry that I will do badly when a teacher says he is going to ask Mathematics questions.	3.14-MA	3.24-MA	2.67-MA
18	Mathematics is one of the most important subjects for people to study.	1.91-LA	2.13-LA	2.67-MA
19	I find it important to discuss with the mathematics instructor an answer I believed to be right, but which was marked wrong.	2.47-LA	2.48-LA	2.67-MA
	Overall Weighted Mean	**2.97-MA**	**2.97-MA**	**2.98-MA**

Moreover, students in the age bracket of 21-23 also had high anxiety levels when they worry about their ability to solve mathematics problems and when they considered mathematics as their least favorite subject as reflected by the weighted means of 3.67 and 3.5, respectively. However, they also had low anxiety levels when they find mathematics useful for their future and when they enjoy learning mathematics as reflected by weighted means of 2.33 and 2.5, respectively.

Considering the overall weighted mean, students regardless of their age had moderate anxiety levels. This means that students had both positive and negative experiences towards mathematics. Though most students find the subject difficult, they still view it as a rewarding experience. This is a good indicator that students still had a good chance in lowering their anxiety levels and thus improve their mathematics performance.

The said findings conform to the study of Elyse Calvert wherein age is the only variable not statistically significant in the determination of numerical anxiety. Students have moderate numerical anxiety levels regardless of gender as indicated by the overall weighted mean of 2.89 and 3.04 for male and female, respectively.

It was found out that male students indicated high anxiety levels in some items because they find mathematics challenging and they are tensed during mathematics test as reflected by weighted means of 3.96 and 3.43, respectively. A certain degree of tension is expected during any mathematics test. However, too much tension can inhibit ability to think clearly. Furthermore, male students also believe that mathematics is one of the most important subjects for people to study and that mathematics can be useful in the future as reflected by weighted means of 1.93 and 1.94, respectively.

Moreover, it was revealed that female students indicated high anxiety levels in some items because they are also tensed during mathematics test and they also find mathematics challenging as reflected in its weighted means of 4.02 and 3.97, respectively. Being tensed during mathematics test is an indication that students did not have sufficient preparation and that test itself is gauging whether or not they have been successful in learning. However, female students also showed very low anxiety level because they find it important to discuss with their mathematics instructor an answer they believe to be right but which was marked wrong as reflected by its weighted mean of 1.64.

Table 5: Numerical Anxiety Level of the Respondents According to Gender

		Male WM-VI	Female WM-VI
1	I find mathematics interesting.	2.41-LA	2.63-MA
2	I get tense during mathematics test.	3.43-HA	3.97-HA
3	I think that I can use mathematics in the future.	1.94-LA	2.09-LA
4	My mind goes blank and I am unable to think clearly when doing mathematics test.	2.89-MA	3.02-MA
5	Mathematics relates to my life.	2.46-LA	2.60-LA
6	I worry about my ability to solve math problems.	3.15-MA	3.22-MA
7	I feel anxious when I try to do math problems.	3.13-MA	3.26-MA
8	I find mathematics challenging.	3.96-HA	4.02-HA
9	Mathematics makes me feel nervous.	3.00-MA	4.02-HA
10	I would like to take more mathematics classes.	2.96-MA	3.25-MA
11	Mathematics makes me feel uneasy.	3.28-MA	3.20-MA
12	Mathematics is one of my favorite subjects.	2.82-MA	3.28-MA
13	I enjoy learning mathematics.	2.54-LA	2.82-MA
14	Mathematics makes me feel confused.	3.23-MA	3.27-MA
15	Mathematics doesn't scare me at all.	2.94-MA	3.40-MA
16	For some reason, even though I study, mathematics seems unusually hard for me.	3.34-MA	3.40-MA
17	I worry that I will do badly when a teacher says he is going to ask mathematics questions.	3.12-MA	3.21-MA
18	Mathematics is one of the most important subjects for people to study.	1.93-LA	2.11-LA
19	I find it important to discuss with the mathematics instructor an answer I believed to be right but which was marked wrong.	2.47-LA	1.64-VLA
	Overall Weighted Mean	**2.89-MA**	**3.04-MA**

According to Campbell and Evans females exhibit more numerical anxiety in secondary school and in college. This result conforms to the study of Devine [4] wherein girls showed higher levels of numerical anxiety than boys. Different researchers have offered many speculative reasons for this difference such as: that it arises from sex roles that assign math to the male domain; that girls may be more willing to admit feelings of anxiety or may be more critical of themselves than boys and that boys have greater self-confidence.

Table 6: Numerical Anxiety Level of the Respondents Along Programs

		CBE WM-DE	CCS WM-DE	CCJE WM-DE	CE WM-DE	CMT WM-DE	CTE WM-DE
1	I find mathematics interesting.	2.14-LA	2.46-LA	2.88-MA	1.89-LA	2.40-LA	2.79-MA
2	I get tense during mathematics test.	3.63-HA	3.60-HA	3.19-MA	3.57-HA	3.60-HA	3.52-HA
3	I think that I can use mathematics in the future.	1.74-VLA	2.15-LA	2.09-LA	1.87-LA	1.82-LA	2.10-LA
4	My mind goes blank and I am unable to think clearly when doing mathematics test.	2.79-MA	3.02-MA	2.77-MA	2.81-MA	3.38-MA	2.96-MA
5	Mathematics relates to my life.	2.37-LA	2.82-MA	2.63-MA	2.24-LA	2.48-LA	2.42-LA
6	I worry about my ability to solve mathematics problems.	2.77-MA	3.28-MA	3.26-MA	2.89-MA	3.54-HA	3.21-HA
7	I feel anxious when I try to do mathematics problems	2.86-MA	3.32-MA	3.11-MA	3.05-MA	3.46-HA	3.19-MA
8	I find mathematics challenging	4.26-VHA	4.09-HA	3.89-HA	4.41-VHA	3.84-HA	4.02-HA
9	Mathematics makes me feel nervous.	3.02-MA	3.72-HA	3.28-MA	3.08-MA	3.60-HA	3.40-MA
10	I would like to take more mathematics classes.	2.83-MA	3.35-MA	3.43-HA	2.46-LA	2.78-HA	3.29-MA
11	Mathematics makes me feel uneasy.	3.14-MA	3.32-MA	3.23-MA	3.35-MA	3.26-MA	3.27-MA

Table 6 (cont.) Numerical Anxiety Level of the Respondents Along Programs

		CBE WM-DE	CCS WM-DE	CCJE WM-DE	CE WM-DE	CMT WM-DE	CTE WM-DE
12	Mathematics is one of my favorite subjects.	2.63-MA	3.22-MA	3.51-HA	2.24-LA	2.64-MA	3.31-MA
13	I enjoy learning mathematics.	2.14-LA	2.82-MA	3.34-MA	2.27-LA	2.62-MA	2.94-MA
14	Mathematics makes me feel confused.	3.07-MA	3.42-HA	3.20-MA	3.00-MA	3.58-HA	3.12-MA
15	Mathematics doesn't scare me at all.	3.21-MA	3.28-MA	3.09-MA	2.92-MA	2.64-MA	3.33-MA
16	For some reason, even though I study, Mathematics seems unusually hard for me.	3.14-MA	3.31-MA	3.34-MA	3.22-MA	3.48-HA	3.48-HA
17	I worry that I will do badly when a teacher says he is going to ask mathematics questions.	3.09-MA	3.34-MA	2.91-MA	2.89-MA	3.42-HA	3.19-HA
18	Mathematics is one of the most important subjects for people to study.	1.67-VLA	2.07-LA	2.22-LA	1.95-LA	2.06-LA	2.10-LA
19	I find it important to discuss with the mathematics instructor an answer I believed to be right, but which was marked wrong.	1.93-LA	2.46-LA	2.62-MA	2.62-MA	2.28-MA	2.60-LA
	Overall Weighted Mean	2.76-MA	3.11-MA	3.05-MA	2.78-MA	2.99-MA	3.07-MA

Students regardless of programs have moderate numerical anxiety level. College of Business Education students had very high anxiety level because they find mathematics challenging as reflected in its weighted mean of 4.26. However, these students also showed very low anxiety because they believe that mathematics is useful for their future and that consider mathematics as one of the most important subjects to study as reflected in its weighted mean of 1.74 and 1.63, respectively. Mathematics forms an important part of accounting, and in the business world in general. These students are aware how beneficial mathematics for their career especially so that most entry-level jobs require employees to have some math knowledge.

It was also revealed that student from the College of Computer Studies had high anxiety level because they find mathematics challenging and that mathematics makes them feel nervous as reflected in its weighted means of 4.09 and 3.72, respectively. However, these students also had low anxiety levels because they believe that mathematics is one of the most important subjects to study and that they also think that they can use mathematics in the future as reflected in its weighted means of 2.07 and 2.15, respectively. Burcu Berican stated that without mathematics it is hard to learn computer science since

knowledge in mathematics helps to conceptualize various fields in computer science. Furthermore, mathematical background will help them to understand and develop logic while programming. Math makes one a better programmer because programming is based on Mathematics.

Moreover, it was also revealed that students from the College of Criminal Justice Education had high anxiety level because they find mathematics challenging and that they consider mathematics as their least favorite subject as reflected in its weighted means of 3.89 and 3.51, respectively. This means that students from the Criminal Justice Education had negative experiences in a mathematics classroom. Such an experience can leave a student believing him or herself deficient in math ability. This belief can actually result in poor performance, which serves as confirming evidence to the student. Thus Criminology students suffer from numerical anxiety. However, these students also had low anxiety levels because they think they can use mathematics in the future and that they believe mathematics is one of the most important subjects for people to study as reflected in its weighted means of 2.09 and 2.22, respectively. Despite making mathematics their least favorite subject, they still find mathematics useful in their career. According to Shane Hall, from police officers

on the street to crime-scene technicians in laboratories to criminologists, math is a necessary skill for criminal investigations, analysis of evidence and the study of criminal behavior.

It was also found out that students from the Engineering department had very high anxiety level because they find mathematics challenging as reflected in its weighted mean of 4.41. However, these students also showed low anxiety because they find mathematics interesting and useful for their future as reflected in its weighted means of 1.89 and 1.87, respectively. This implies that engineering students find mathematics difficult, yet they are still of interest with the subject since mathematics is indeed beneficial to their future. Engineers use their knowledge of mathematics to find suitable solution to the problem.

Furthermore, it was also noted that students from College of Marine Transportation had high anxiety levels because they find mathematics challenging and are tense during mathematics test as reflected by weighted means of 3.84 and 3.60, respectively. Students who are tensed during mathematics test are those who had not done enough preparation. During mathematics test, it takes a calm and controlled emotional state memory and judgment to work most effectively.

Lastly, students from the College of Teacher Education had high anxiety level because they find mathematics challenging and are tense during mathematics test as reflected by the weighted means 4.02 and 3.52, respectively. However, they also showed low anxiety levels because they believe that they can use mathematics in their future and find mathematics as one of the most important subjects to study which both had 2.10 as its weighted mean. As future teachers, it is an imperative for them to really have positive views with regards to mathematics. Mathematics is an essential discipline and it needs to be augmented in education to equip students with skills necessary for career aspirations and for attaining personal fulfillment.

Table 7: Correlation Between the Students Numerical Anxiety Level and Mathematics Performance

Subject	r-value	Remarks
Algebra	-0.2996	Significant
Trigonometry	-0.3239	Significant

Tabular value: -0.113

The computed r-values of -0.2996 and -0.3239 for College Algebra and Trigonometry, respectively are beyond the tabular value of -0.113 at 313 degrees of freedom tested at 0.05 level of significance, the null hypothesis is rejected in favor of the research hypothesis. This means that there is a significant relationship between mathematics performance and numerical anxiety. However, the relationship is inverse and small. It implies that the higher the numerical anxiety, the lower the performance.

This finding conforms with the study of Khatoon, [7] in her research: "Numerical anxiety Among Secondary School Students in India and its Relationship to Achievement in Mathematics" wherein math anxiety and math achievement has a significant negative correlation (-0.48).

CONCLUSION

The mathematics performance of the students regardless of age is passing. According to gender, male had passing performance while female had fair performance. According to programs, students coming from Criminal Justice Education, Engineering and Marine Transportation had passing mathematics performance while those coming from Business Education, Computer Studies and Teacher Education had fair performance.

The numerical anxiety level of the respondents across variables did not vary. Students regardless of their profile had moderate numerical anxiety level.

There is a significant relationship between numerical anxiety and mathematics performance. However, the relationship between variables is small and inverse. This means that the higher the numerical anxiety, the lower the performance and the lower the numerical anxiety the better the performance.

RECOMMENDATION

There is a need to improve the mathematics performance of the students. The best way to learn mathematics is through constant correct practice. A student will have a better understanding if he practices mathematics on a regular basis and will not likely to forget the process even under stress.

There is a need to lower the anxiety level of the students. Students should acknowledge that they have numerical anxiety and should take responsibility. The teachers and parents should also be aware that their students have numerical anxiety. It is only then that the students themselves, teachers, and parents should

sit down together and plan for a better strategy on how to combat numerical anxiety and numerical anxiety is significantly related to mathematics performance. Thus, there is a need to lower the numerical anxiety of the respondents to improve their mathematics performance.

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