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Students' Performance in Applied Industrial Mathematics Based on Identified Variables

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Abstract This study sought to determine the profile of the respondents in terms of gender, type of School graduated from, IQ, high School grade in Math, mathematics performance in Applied Industrial Mathematics and attitudes towards mathematics. This study also determined the relationship on students' mathematics performance and the aforementioned variables. The study utilized the descriptive-documentary design. It was conducted at Bohol Island State University Main Campus (BISU-MC), Tagbilaran City. A total of 200 selected first year college students from College of Technology and Allied Sciences (CTAS) were the respondents of the study. Proportional sampling was considered in the study. The researcher utilized the Form 138, Applied Industrial Mathematics grade and IQ. The researcher also used the questionnaire to gather the attitudes towards mathematics. The weighted mean, Pearson Product Moment Coefficient of Correlation and Point Biserial Correlation were used to treat the data. Based on the findings, the mathematics performance of the students is related to IQ, High School Grade in Math and Attitudes towards mathematics. However, gender and type of school graduated were found out to be not related to mathematics performance. The study recommends that teachers may conduct diagnostic examination to evaluate students' previous mathematical skills. A policy shall be made by the administration to monitor the conduct of this diagnostic examination. Teachers should also encourage the formation of Math Club. This could help the students enhance their mathematical competencies and their attitudes towards mathematics. The students must be exposed to different techniques in learning mathematics so that their confidence and eagerness in solving mathematical problems and exercises will be enhanced. Students themselves should develop the proper attitudes towards mathematics. The mathematics instructors should be immersed to technology shops so that they could relate technology shop terms in teaching mathematics. A similar research study may be made in line with the other factors that affect students' mathematics performance. Such factors include teaching style, study habits, class size and students' reading comprehension skills.

Keywords: *IQ, mathematics performance, attitudes towards mathematics, descriptive documentary design, Pearson Product Moment Coefficient of Correlation, Point Biserial Correlation, diagnostic exam*

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1. Introduction

Mathematics occupies a crucial and unique role in the human societies and represents a strategic key in the development of the whole mankind. The ability to compute, related to the power of technology and to the ability of social organization, and the geometrical understanding of space-time, that is the physical world and its natural patterns, show the scientific and cultural role of mathematics in the history of civilization and in the future development of the Information Society. The usefulness of mathematics is perceived in different ways.

Mathematics is seen in terms of arithmetic skills which are used at home, in the office or in the workshop; used as basis of scientific development and modern technology; used as management tool in commerce and industry, and the like. Thus, all these things could not be attained if this discipline is not nurtured in every institution. However, in Bohol Island State University (BISU) specifically the College of Technology and Allied Sciences (CTAS), it is unfortunate to observe that students find difficulty in learning mathematics subjects. They lack interest in their academic subjects especially in mathematics. Apparently, students perceive the subject as difficult since they do not have basic knowledge and skills. As an outcome they were lag behind in campus math contests, obtain low grades and worst, fail in the subject. Thus, to overcome these weaknesses, the students should have a strong foundation in mathematics fundamentals in their early years of schooling because they cannot comprehend higher level of mathematics if they do not understand the principles and skills of basic mathematics subjects. In addition, the

students' low performance in College Basic Mathematics can be attributed to the previous educational background of the students, given that previous training contributes to the success in school work. College students come from different schools with varied academic standards. Some come from public schools where instructional materials and school facilities are often inadequate; while others are from private schools with a well-organized instructional system.

Moreover, gender is also included as contributing factor to students' mathematics performance considering the fact that most of the courses in CTAS are intended for males. Likewise, they do not only differ in gender but also in attitudes towards learning the subject since they come from different places with different personalities. Furthermore, students' IQ is also considered in this study since BISU administers an IQ test for general admission to any of the courses offered. However, only those who pass the test are admitted for enrolment. Since they undergo screening, students are expected to have high performance in mathematics. Generally, it is essential to know the factors that affect the performance of the students in mathematics because it is the foundation for other advanced Mathematics subjects. Hence, proper interventions during their freshmen years will reduce the amount of remediation needed in their higher years. With all these concepts in mind, the researcher is motivated to assess the mathematics performance of the students as it relates to IQ, gender, attitudes towards mathematics, high school grades in math, and type of school graduated from so that appropriate steps maybe proposed to improve the performance of the students.

2. Research Methodology

2.1. Subjects of the Study

This study was conducted at Bohol Island State University Main Campus (BISU) Tagbilaran City (BISU). It has four colleges namely: Engineering, Teacher Education, Technology and Allied Sciences and Business Arts and Sciences. The College of Technology and Allied Sciences (CTAS) comprises seven courses: Bachelor of Science in Industrial Technology, Bachelor of Science in Hotel and Service Technology, Bachelor of Science in Electronics Technology, Bachelor of Science in Electrical Technology, Diploma in Electronics Technology, Diploma in Electrical Technology and Diploma in Industrial Technology. The freshmen students of CTAS were the respondents in this study. In determining the sample size of the respondents, scientific formula for sample size was used. Then, stratified random sampling was employed. The respondents were grouped into four classes according to gender and type of school graduated. The table below presents the distribution of respondents.

2.2. Research Design

The researcher employed the descriptive-documentary design. Descriptive survey research design was used to obtain the attitudes of students towards Mathematics. Moreover, descriptive documentary was used to obtain the educational records of the students. These records include Form 138, Applied Industrial Mathematics Grade and IQ.

2.3. Data Gathering Procedure

A letter asking permission to conduct a study was submitted to the Campus Director of BISU Main Campus. After the approval, the researcher sent a letter to the school registrar asking permission to access the records of the respondents. With the permission, the researcher went over the records filed in the Registrar's Office. These include Forms 138, and BISU grade sheets in Applied Industrial Mathematics. Another permission letter was also sent to the Guidance Office so that the researcher could have the results of the Standardized IQ Test. The researcher personally informed the respondents the purpose of the study. Then, the questionnaire forms for attitudes were administered to the respondents and were retrieved thereafter. After the retrieval of the questionnaires and records, the data were tabulated for analysis and interpretation.

2.4. Instruments Used

To gather the average grade in high school Mathematics of the respondents, the researcher utilized their Forms 138. The other variables such as gender, type of school graduated were also reflected in the aforementioned form. Moreover, the final grades of the respondents in Applied Industrial Mathematics were gathered to determine the actual mathematics performance. The results of the standardized IQ test were secured from the Guidance Office to determine the mental ability of the respondents. Likewise, to assess the respondents' attitudes towards mathematics, the researcher constructed a modified questionnaire based on Fennema-Sherman Attitudes Scale. There are 30 items in this aspect. This instrument used a 5-point scale criterion with responses from strongly agree to strongly disagree. For a positive statement, a score of five will be defined as strongly agree and one for strongly disagree. For negative statement, a score of five will be defined for strongly disagree and one for strongly agree. The constructed questionnaire was given to the adviser, panel and critic for corrections. After the approval, the questionnaire was pilot-tested to 20 CTAS freshmen students for validation. Then, it was finalized and distributed to the respondents.

2.5. Statistical Treatment

To obtain the sample size of the respondents, the formula below is used:

$$S_s = \frac{NVx[Se2+(1-p)]}{NSex[V2+p(1-p)]} \quad (1)$$

where:
S_s = sample size
N = total number of population
V = the standard value (2.58) of 1 percent level of probability with 0.99 reliability
S_e = sampling error
P the largest possible population

Mean for grouped data is used to determine the profile of the students in terms of IQ, high school grade in math, gender, type of school graduated and attitude towards mathematic.

$$\bar{x}=\frac{\sum fx}{n} \quad (2)$$

where:
$\bar{x}$ – the computed mean
$\sum fx$ - sum of the product of students' profile and its frequency
n – total number of respondents

The researcher interpreted the students' mathematics performance using the following range with its corresponding descriptions.

Range	Percentage	Description
1.0– 1.2	95% - 100%	Excellent
1.3 - 1.5	90% - 94%	Very Good
1.6 – 2.5	80% - 89%	Good
2.6 – 3.0	75% - 79%	Fair of Passing
5.0	below 75%	Failure

The researcher interpreted the students' high school average grades using the following range with its corresponding descriptions.

Range	Description
90 - 94	Excellent
85 - 89	Very Good
80 - 84	Good
75 – 79	Fair of Passing
74 - 70	Failure

The researcher interpreted the students' IQ raw scores using the following range with its corresponding descriptions. This range is reflected in the Otis Lennon School Ability Test (OLSAT) manual.

Range	Description
64 - 72	Above Average
46 - 63	Average
0 - 45	Below Average

The researcher interpreted the students' attitudes towards mathematics using the following scale with its corresponding descriptions.

Weighted Mean Intervals	**Qualitative Description**
4.21 – 5.00	Strongly Agree (SA)
3.41 – 4.20	Agree (A)
2.61 – 3.40	Slightly Agree (SLA)
1.81 – 2.60	Disagree (DA)
1.00 – 1.80	Strongly Disagree (SD)

In the computations of the average weighted mean in each respondent the scale is being reversed for negative statements.

To determine the relationship between students' mathematics performance, gender and type of school graduated, Point-biserial Correlation was used. The researcher used the Pearson Product Moment Coefficient of Correlation in determining the correlation of students' mathematics performance with IQ, High school grade in math and attitudes towards mathematics.

$$r_{xy}=\frac{N\sum XY-(\sum X)(\sum Y)}{\sqrt{\left[\sum X^2-\left(\sum X\right)^2\right]\left[N\sum Y^2-\sum Y^2\right]}} \quad (3)$$

Where:
r_{xy} = the correlation between x and y
X = the weighted mean of the first variable
y = the weighted mean of the second variable
$\sum xy$ = the sum of the product of x and y
$\sum x^2$ = the sum of the squares of the first variable (x)
$\sum y^2$ = the sum of the squares of the 2nd variable (y)
N = the number of respondents.

In interpreting the correlation value, the result was referred to the table of significance for the Pearson-Product Moment of Correlation.

Interpretation of Correlation Value

"r"		Descriptive Meaning
0.00 - ± 0.20	-	negligible correlation
±0.21 - ± 0.40	-	low/slight relationship
±0.41 - ± 0.70	-	moderate correlation
±0.71 - ± 0.90	-	high relationship
±0.91 - ± 0.99	-	very high relationship
±1.00	-	perfect relationship

To test for the significance of the relationship the t-test was computed and compared against the table of critical value at 0.05 level of significance.

$$t=\frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \quad (4)$$

Where:
r = the computed pearson "r"
t = the calculated t
N = number of respondents

3. Results and Discussions

Table 1. Profile of the CTAS Freshmen Students in terms of gender (N=200)

Gender	Frequency	Percentage
Male	129	64.5%
Female	71	35.5%
Total	200	100%

Table 2. Profile of the CTAS Freshmen Students in terms of Type of School Graduated (N=200)

Type of School Graduated	**Frequency**	**Percentage**
Private	43	21.5%
Public	157	78.5%
Total	200	100%

As shown in the Table 1 and Table 2, majority of the students graduated from public high schools. They are 78.5% of the total population, while graduates from private high schools are only 21.5%. It implies that the students coming from public high schools are more likely to enroll in Bohol Island State University because this is a public university.

Table 3 presents the IQ raw score profile of CTAS freshmen students. As revealed in the table, majority of the respondents belong to **Below Average** level which is 95% of the total population. This may imply that majority of the freshmen have below average level of intelligence.

Table 3. IQ Raw Score Profile of CTAS Freshmen Students (N= 200)

Range	**Frequency**	**%**	**Description**
64-72	1	0.5%	Above Average
46-63	9	4.5%	Average
0-4	190	95%	Below Average

Table 4 presents the high school average grade profile of the CTAS freshmen students. It shows that majority of the respondents belong to **Good** or **Average** level which is 38.79% of the total population. The respondents who get **Fair/Passing** rating are 34.48% of the total population. These findings manifest that the students performed on average level in their high school mathematics. t also suggests that freshmen students of the College of Technology and Allied Sciences are moderately good in mathematical skills.

Table 4. Profile of CTAS Freshmen Students in terms of High school mathematics average grade (N= 200)

Range	Frequency	%	Description
90-94	6	2.59%	Excellent
85-89	40	24.14%	Very Good
80-84	76	38.79%	Good
75-79	78	34.48%	Fair/Passing

Table 5 presents the mathematics performance profile of the CTAS freshmen students. It shows that majority of the respondents belong to **Fair or Passing** level which is 54% of the total population. No one gets **Excellent** rating. The respondents who get **Good** rating are 45.5% of the total population. These findings suggest that the majority of CTAS freshmen students performed on **Passing** level. It also implies that the freshmen students of the College of Technology and Allied Sciences are only **Average** in mathematical skills considering the fact their focus is on their specialization.

Table 5. Mathematics Performance Profile of CTAS Freshmen Students (N= 200)

Range	Frequency	%	Description
1.0-1.2		0%	Excellent
1.3-1.5	1	0.5%	Very Good
1.6-2.5	91	45.5%	Good
2.6-3.0	108	54%	Fair

Table 6 presents the attitudes of the freshmen students of the College of Technology and Allied Sciences towards mathematics. In the aspect of self-confidence, it shows that seven out of ten items have the **Slightly Agree** answers while the remaining three have **Agree** responses. Among the items with slightly Agree responses were "It makes me nervous to even think about math", "I am unable to think clearly when working with mathematics" and I am able to solve mathematics without much difficulty". This finding implies that students have slight confidence in learning mathematics. They are slightly convinced to study mathematics since the average weighted for self- confidence category is 3.15 described as **Slightly Agree**. This may imply that they are fairly in doubt in performing mathematics exercises. This could be a result of their preconceived notion that mathematics is definitely a challenging subject. Moreover, it appears also that students have developed anxiety or fear in learning the subject.

This finding is supported by Ashcraft and Kirk [1] who revealed that high mathematics anxiety is associated with smaller working memory capacity, and consequently poor performance in mathematics. Thus, teachers can help students overcome math anxiety by building strong relationships with them. They should listen to their students, to pay attention to how they react to math class and the pressures of math.

Table 6. Attitudes of the College of Industrial Technology Freshmen Students towards Mathematics (N=200)

Statement on Student's Attitudes	W.M N=200	Description
A.Self-Confidence		
1	3.58	Agree
2	3.68	Agree
3	3.12	Slightly Agree
4	2.93	Slightly Agree
5	2.85	Slightly Agree
6	3.05	Slightly Agree
7	3.1	Slightly Agree
8	2.63	Slightly Agree
9	3.64	Agree
10	2.88	Slightly Agree
Average	3.15	Slightly Agree
B. Value		
1	4.24	Strongly Agree
2	4.55	Strongly Agree
3	4.39	Strongly Agree
4	4.13	Agree
5	3.99	Agree
6	4.33	Strongly Agree
7	3.96	Agree
8	4.25	Strongly Agree
9	4.44	Strongly Agree
10	4.20	Strongly Agree
Average	4.25	Strongly Agree
C. Enjoyment		
1	3.64	Agree
2	3.47	Agree
3	3.92	Agree
4	3.14	Slightly Agree
5	3.56	Disagree
6	3.42	Disagree
7	3.53	Disagree
8	3.69	Disagree
9	2.62	Slightly Agree
10	2.92	Slightly Agree
Average	3.39	Slightly Agree
General Average	3.60	Agree

On the other hand, in the aspect of value, the item "Mathematics develops the mind and teaches a person to think", has the highest rating among the items in this

category with a weighted mean of 4.55 described as **Strongly Agree.** However, the item "The application of math is practical", has the lowest rating among the items. The weighted mean is 3.99 described as **Agree**. The average weighted of the value category is 4.25 described as **Strongly Agree**. This finding signifies that the students are aware of the implication of mathematics towards their intellectual development. It appears also that the students recognized the application of math in their daily lives. Moreover, for enjoyment category, four out of 10 items get **Disagree** responses. The average weighted mean for this category is 3.39 described as **Slightly Agree**. This reveals that the students have moderate enjoyment in learning mathematics. This finding further suggests that students are not at all times interested in learning mathematics. This is maybe because they lack prior knowledge and skills in the subject considering the fact that mathematics subject contains complicated topics that require mathematical analysis that seems hard to conceptualize. Generally, the average weighted mean of students' attitudes towards mathematics is 3.60 described as **Agree**. This finding shows that CTAS freshmen students have good attitudes towards mathematics however they have restrained interest and outlook towards studying the subject.

As reflected in Table 7, the computed correlation between mathematics performance and gender shows a negligible correlation. It manifests insignificant relationship, since the calculated t-value of 1.145 which is lower than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is accepted. The result reveals that mathematics performance is not related to gender. It shows that gender has no significant influence on students' mathematics performance. It further implies that whether a student is male or female it does not make a difference in one's mathematics performance.

This finding is further supported by Spelke [2], with an assumption that there is no evidence for a male advantage in perceiving, learning or reasoning about objects, their motions, or their mechanical interactions. Rather, there are more similarities than differences. Male and female infants have common abilities to represent and learn about objects, numbers, language, and space. Thus, males and females have equal capacity in learning a certain subject like mathematics.

On the correlation between Mathematics Performance and Type of school graduated, the result is also negligible correlation. It shows insignificant relationship, since the calculated t-value of 0.034 which is lower than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is accepted. This implies that mathematics performance is not related to type of school graduated. It further confirms that whether a student attends a public or a private secondary school it does not make a difference in his college mathematics performance. On the other hand, mathematics performance and IQ, have a moderate correlation. It shows significant relationship, attested by the calculated t-value of 6.583 which is higher than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is rejected. The result reveals that students' mathematics performance and IQ are correlated to each other. This implies that students' IQ is moderately related to students' mathematics performance. Thus, a student with high IQ will be most likely obtained high grades in mathematics.

The finding is supported by Pancito [3] with an assumption that students with low IQ are presumed to be low achievers while students with high IQ are believed to be high achievers. However, not all students with higher IQ do well in mathematics. There are students with higher IQ do not perform well in mathematics because of their negative attitudes towards the subject.

This finding is further supported by Piaget as cited by Jala [4] who mentioned that a student with average mental ability could get higher grades because of right work attitudes. Thus, if an individual has the right attitude and is properly motivated, he is expected to perform well in mathematics.

Moreover, mathematics performance has moderate correlation with high school mathematics grade. It shows significant relationship, attested by the calculated t-value of 7.680 which is higher than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is rejected. The result confirms that students' mathematics performance and high school mathematics grade are related to each other. This implies that students with good mathematics grades in high school have also good mathematics grades in college. This finding supported by the Law of Readiness by Edward Lee Thorndike which states that a person learns best when he has the necessary background, a good attitude, and the readiness to learn. A student does not learn much if he sees no reason for learning. Getting a student ready to learn is usually a teacher's job. Hence, there is a need to equip the child with the necessary background in basic mathematics subjects to acquire meaningful learning in advanced mathematics.

Table 7. Relationship between Mathematics Performance and Identified Variables (N=200)

Variables	"r"	Description	Computed "t"	T-value	Description	Interpretation
			df 198 at 0.05 level of significance			
Mathematics Performance & Gender	0.078	negligible Correlation	1.145	±1.960	Insignificant	Accept null hypothesis
Mathematics Performance & Type of School Graduated	0.034	Negligible correlation	0.480	±1.960	Insignificant	Accept null hypothesis
Mathematics Performance & IQ	-0.42	Moderate Correlation	6.583	±1.960	Significant	Reject null hypothesis
Mathematics Performance & High School Grade in Math	-0.48	Moderate Correlation	7.680	±1.960	Significant	Reject null hypothesis
Mathematics Performance and Attitudes towards Mathematics	-0.40	Low Correlation	6.137	±1.960	Significant	Reject null hypothesis

It is further supported by Sayson [5] who mentioned that students' background in high school mathematics enhances their readiness for college mathematics. Inadequate background in mathematics causes the students' difficulties. In fact, learning depends on prior knowledge. Students fail to solve word problems because they were not afforded adequate experiences in analyzing and solving problems.

Furthermore, the attitude of students towards mathematics and their mathematics performance have a low correlation. The calculated t-value of 6.137 which is higher than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, it shows significant relationship and the null hypothesis is rejected. The result shows that students' attitudes towards mathematics and their mathematics performance are related to each other. It implies that the more positive the students' attitudes towards mathematics, the higher the achievement they can get. Positive beliefs and attitudes will lead to increased achievement [6]. Thus, if the students find mathematics useful in their daily living through the activity approach that some teachers employ, then, the students are more likely to consider mathematics interesting and creative.

This finding is further supported by McCleod [7] who mentioned that student's achievement can influence a student's attitude. Thus, it is important for teachers to improve student work to make a positive change in their attitude toward mathematics.

4. Conclusions and Recommendations

This study aimed to assess the mathematics performance of the freshmen students in the College of Technology and Allied Sciences of Bohol Island State University Main Campus.

Specifically, this study sought to determine the profile of the respondents in terms of IQ, Gender, Attitudes Towards mathematics, High School Grade in Math, Type of School Graduated From and Mathematics Performance in Applied Industrial Mathematics. This study also determines the relationship on students' mathematics performance and the aforementioned variables. Lastly, the researcher aims to offer a proposed action plan that could improve the students' performance in mathematics.

The study utilized the descriptive-documentary design. It was conducted at Bohol Island State University Main Campus (BISU-MC), Tagbilaran City.

A total of 200 randomly selected first year college students from the College of Technology and Allied Sciences (CTAS) were the respondents of the study. They were composed of 57 female-public, 14 female-private, 100 male-public, and 29 male-private.

The researcher utilized the Form 138, Applied Industrial Mathematics grade and IQ. The researcher also utilized the questionnaire to gather the attitudes towards mathematics. The weighted mean, Pearson Product Moment Coefficient of Correlation and Point Biserial Correlation were used to treat the data.

4.1. Findings

After the data had been analyzed and interpreted accordingly, the researchers came up with the following findings:

1. **Profile of the Respondents**
   - **a. Gender. M**ajority of the respondents are males which is 64.5% of the total population. This suggests that majority of the courses in CTAS are male dominated.
   - **b. Type of School Graduated.** Majority of the students graduated from public high schools which is 78.5% of the total population.
   - **c. IQ.** Majority of the respondents belong to **Below Average level** which is 95% of the total population. This suggests that CTAS freshmen students are low in intellectual ability.
   - **d. High School Grade in Math.** Majority of the students fall between **Good** and **Fair/Passing** levels which is 38.79% and 34.48% respectively of the total population. Only 2.59% gets **Excellent rating**. The mean value is 81 which is **Good**.
   - **e. Mathematics Performance in Applied Industrial Mathematics.** Majority of the respondents belong to **Fair or Passing level** which is 54% of the total population. No one gets **Excellent** rating. The respondents who rated **Good** are 45.5% of the total population. The average grade is 2.5 which is **Good**.
   - **f. Attitudes towards Mathematics.** Most of the CTAS freshmen Students have good rating in their responses towards their attitudes in mathematics. In the aspect of value, the average weighted mean is 4.25. They recognized the value of mathematics in their life. However, they have slight response in terms of self-confidence and enjoyment towards the subject. The averaged weighted mean obtained were 3.15 and 3.60 respectively. Both category were described as **Slightly Agree.**

2. Relationship between Mathematics Performance and:

- **a. Gender.** The correlation between mathematics Performance and Gender is negligible. It shows insignificant relationship, attested by the calculated t-value of 1.145 which is lower than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is accepted. The result reveals that gender and mathematics performance are not related to each other.
- **b. Type of School Graduated.** The correlation between Mathematics Performance and Type of School Graduated resulted is low. It shows insignificant relationship, attested by the calculated t-value of 0.480 which is lower than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is accepted. The result reveals that mathematics performance and type of school graduated are not related to each other.
- **c. IQ.** The correlation between mathematics performance and IQ is moderate. It shows significant relationship, attested by the calculated t-value of 6.583 which is higher than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is rejected. The result reveals that students' mathematics performance and IQ are related to each other.
- **d. High School Grade in Math.** The correlation between Mathematics Performance and High School Grade in Math is moderate. It shows

significant relationship, attested by the calculated t-value of 7.680 which is higher than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is rejected. The result reveals that students' mathematics performance and high school grade are related to each other.

e. Attitudes towards Mathematics. The correlation between the Attitudes of students Towards Mathematics and their Mathematics Performance is low. It shows significant relationship, attested by the calculated t-value of 6.137 which is higher than the t-critical value of 1.960 at 0.05 level of significance with df 198. Thus, the null hypothesis is rejected. The result reveals that students' attitudes towards mathematics and their mathematics performance are related to each other.

4.2. Conclusions

The Mathematics Performance of the Students is related to IQ, High School Grade in Math and Attitudes Towards Mathematics. However, Mathematics Performance is not related to Gender and Type of School Graduated.

4.3. Recommendations

Based on the findings, the researcher came up with the following recommendations:

1. The teachers are encouraged to conduct diagnostic examination to evaluate students' previous mathematical skills. This will indicate the strengths and weaknesses of the students in the subject.
2. Teachers should encourage the formation of Math Club. This could help the students enhance their mathematical competencies and their attitudes towards mathematics.
3. A policy shall be made by the administration to monitor the conduct of diagnostic examination.
4. The students must be exposed to different techniques in learning mathematics so that their confidence and eagerness in solving mathematical problems and exercises will be enhanced.
5. Students themselves should develop the proper attitudes towards mathematics. They should improve their study habits to have excellent grades in mathematics.
6. The mathematics instructors should be immersed to technology shops so that they could relate technology shop terms in teaching mathematics. In this manner, the students will be more motivated to learn mathematics.
7. A similar research study may be made in line with the other factors that affect students' mathematics performance. Such factors include teaching style, study habits, class size and students' reading comprehension skills.

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