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Research Article

Mathematics Learning of High School Students and the Determinants of their Performance in the Midst of Pandemic

Andie Tangonan Capinding

Faculty Member of Nueva Ecija University of Science and Technology – Gabaldon Campus, Gabaldon Nueva Ecija, Philippines
Email: andiecapinding103087@gmail.com

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Abstract: The study focused on the determinants of Mathematics performance of high school students amidst pandemic. This was conducted at NEUST-Gabaldon Campus during the School Year 2020-2021. A descriptive-correlational design was used to explore the relationship of the students' Mathematics performance with the factors that might affect the latter such as student's factor, teachers' factor, and parents/guardians' factor. The 211 junior and senior high school students, four mathematics teacher, and 211 parents/guardians were used as respondents of the study. The student-respondents as well as the parent-respondents were selected using stratified sampling while the teacher-respondents were selected purposively. Findings revealed that most of the student-respondents are females and most of them are fifteen years old. Most of the students earned satisfactory to very satisfactory grades, demonstrated a variety of learning styles, and were inspired and enthusiastic about learning Mathematics. Teachers are also highly capable of delivering a lesson, as shown by their professional qualifications, number of trainings/seminars attended, number of years of experience, and use of variety of teaching strategies. Parents are also capable of educating their children but majority of them lack financial resources which limits their ability to improve their children's learning opportunities. The student's attitude, motivation, visual and auditory learning, the teacher's educational qualification and teaching style, and the parent's educational attainment and economic status were all observed as determinants of Mathematics success. Its theoretical and practical consequences were also discussed in the study.

Keywords: Determinants of Mathematics Performance, Student Factors, Teacher Factors, Parents Factors, Pandemic

1. Introduction

The rapid spread of the Corona Virus across the world has resulted in a significant shift in global standards and norms. In various areas and towns, lockdowns and limitations were enforced. This pandemic affected not only the government and other private sectors but also the educational system, especially in the Philippines. Face-to-face classes were restricted, and blended learning, consisting primarily of modular classes, was mandated. As a result, students, teachers, and parents would need to make significant adjustments to fit into the new normal. Educators also must offer to learn across various modalities to improve and elevate students' learning output even amid a pandemic. As a result, in this period of uncertainty, it is important to identify the variables or factors that influence a student's Mathematics success. Educators should then make an effective intervention to help students improve their learning potential.

Mathematics, on the other hand, is one of the subjects that students wish to avoid; many students regard Mathematics as a challenging and boring topic. This belief causes students to be afraid of Mathematics. Additionally, students who are afraid of Mathematics develop anxieties that make it difficult for them to cope with the subject. As a result of their fear, students fall behind. Furthermore, some students have anxiety in Mathematics in face-to-face learning which might increase during blended learning.

According to research, one of the factors that lead students to achieve higher Mathematics performance is their curiosity and motivation to learn. It provides fuel for them to reach their full potential. However, their drive and interest might not be supported if the learning opportunities are limited and experiences which are often contained in classroom settings. In addition, educators have to reach their full potential to help these students.

Another consideration would be the students' individual variations. Some students learn best when listening to music or watching videos, and others learn best while they are alone or with their peers. However, it is challenging to determine the factors that may lead students to learn at their best.

There have been studies done to identify the factors that contribute to students doing better in Mathematics. Teachers' interactions, teacher's qualification, teachers'/students' attitude, and school category are all predictors of secondary school students' Mathematics success in Kenya, according to Wanjohi (2011). Although gender and school facilities cannot be used to predict a student's Mathematics success, according to Aljaberi (2015), students' learning styles affect their ability to solve mathematical problems. Furthermore, according to Malibiran, et. al. (2019), grades in Mathematics and English, as well as gender and teaching loads, affect students' Mathematics results. Only the students' English grades and comprehension abilities were considered to be determinants of problem-solving success.

With this, the researcher wants to assess the determinants of Mathematics performance of High School students at Nueva Ecija University of Science and Technology – Gabaldon Campus amidst pandemic where modular learning approach is being implemented. The study focused on the internal and external factors that may affect the student's Mathematics performance in the new set up of teaching and learning.

Generally, this study aimed to identify the determinants of the Mathematics performance of High School students of NEUST Gabaldon Campus during the first two quarters of the School Year 2020-2021.

Specifically, this study aimed to answer the following questions: How may the student respondents be described in terms of: Mathematics performance; age; sex; attitude towards Mathematics; motivation; and learning style? How may the teacher's respondents be described in terms of: educational qualification; number of training and seminar attended; length of service as a professional teacher; and teaching style? How may the parents/guardians-respondents be described in terms of: civil status; age; economic status; educational attainment; and source of income? Is there a significant relationship in the student's Mathematics performance with the Student's age, sex, attitude towards Mathematics, motivation, and learning style? Is there a significant relationship in the student's Mathematics performance with the teacher's educational qualification, number of training and seminar attended, length of service as a professional teacher, and teaching style? Is there a significant relationship in the student's Mathematics performance with the Parent's/Guardian's civil status, age, economic status, educational attainment, and source of income?

2. Related Literature

Age, Sex and Mathematics Performance

Josah and Adejoke (2014) looked into the effects of gender, age, and Mathematics anxiety on algebra achievement in college students. Algebra achievement is the study's dependent variable, whereas gender, age, and Mathematics anxiety are the study's independent variables. The findings were analyzed using the mean, standard deviation, independent t-test, and one-way ANOVA. Students performed well in the Algebra course, according to the findings. Furthermore, there were no significant variations in achievement between genders, ages, or levels of Mathematics anxiety (low, medium, and high). Since the participants are in their first semester of college and their grades are typically average, new students should be given proper orientation on how to be high achievers in the program. Furthermore, their lecturers should provide as simple a set of instructions as possible.

Furthermore, Abubakar, Bada, and Adegboyega (2012) illustrated the importance of Mathematics education in all fields. Based on their research, age and gender are considered determinants of academic achievement (CGPA) of Mathematics students. A total of 78 people took part in the survey, with 38 females and 40 males (78). Scatter plots, mean, and standard deviation were descriptive statistics, while univariate analysis of variance (ANOVA) and multiple regressions were inferential statistics. The T-test was used to test the null hypothesis (P 0.05). Age and CGPA, as well as gender and CGPA, were found to have a linear relationship. The positive correlation coefficients for age and gender (r=0.142 and 0.004, respectively) were not significant. When the predictor variables were combined, age was the better predictor, accounting for 2.1 per cent of the difference. The null hypothesis was acknowledged, implying that there was no significant gender gap in academic achievement among students. To determine a meaningful relationship between students' academic achievement in Mathematics, more variables should be used.

Students Attitude towards Mathematics

One of the most critical factors in excelling in a topic is a student's interest and attitude toward education. Those who have positive attitudes toward Mathematics, according to Schereiber, as cited by Balbosa (2010), perform better in this subject. According to Doctolero, as quoted by Villanueva (2010), the calculated r values of 0.796 and 0.863 for the control and experimental classes, respectively, indicated a strong association between students' attitudes and Mathematics achievements. The positive attitude of the respondents toward the subject may have contributed to the important correlation.

Lubina (2004) found a significant relationship between the level of interest in Mathematics and success in College Algebra in his research, as shown by the correlation coefficient of – 0.162. However, the correlation coefficient for attitude toward and success in College Algebra was 0.084, which is considered "not significant." Furthermore, Tuncer, M., and Yilmaz, Y. (2020) discovered a connection between attitude as a scaling factor and Mathematics lesson progress. Subia, G., Salangsang, L., and Medrano, H. (2018) found that attitude is associated with Mathematics success in NEUST Cabanatuan city freshmen BEED students. According to the findings, respondents conclude that working with Mathematics problems would improve their critical thinking skills and increase their chances of being more effective in life.

Nonetheless, Wong, S.L. and Wong, S.L. (2019) found no link between interest and mathematical performance. The findings of this study revealed that it was critical to stimulate attention among students who

struggled in Mathematics because of their strong ties to the subject. The Interest-Driven Creator theory was discussed in the context of Mathematics learning as part of the study's theoretical framework.

Students Motivation

The hypothesized relationships between two motivation factors, one attitude factor, and one academic engagement factor on math and science achievement were estimated and evaluated using structural equation modelling by Kusum Singh, Monique Granville, and Sandra Dika (2002). The results demonstrated the positive impact of the two motivation variables, attitude and academic time, on Mathematics and science achievement. The amount of time spent on homework in the class had the greatest impact. Ivo J. M. Arnold and Jerry T. Straten (2012) have shown that by combining data on students' math skills and motivation, they can provide a rich picture of why students succeed in their economics studies, reiterating previous findings that weak math training is bad for first-year economics performance. However, they discover that in the population of math-challenged students, motivation is critical. In a survey of Erasmus School of Economics students, they used factor analysis to identify four motivational factors; of these, intrinsic motivation is the most strongly linked to first-year study results. They also show how students can use intrinsic motivation to overcome a lack of math training.

Stevens, Olivarez, Lan, and Tallent-Runnels (2004) contrasted the self-efficacy and motivational orientation of Hispanic and Caucasian students to predict variables related to Mathematics achievements, such as math performance and intentions to take additional math courses. Path models were tested for 358 students in grades 9 and 10 who attended a West Texas High School, with the sample split by ethnicity. The findings were well-fitting to the models, suggesting that self-efficacy predicts motivational orientation and math performance. According to ethnicity-based measures of each model parameter, there was one significant difference in the relationship between prior Mathematics achievement and self-efficacy for Hispanic students. The results indicate that similar motivational mechanisms exist regardless of ethnicity to predict Mathematics achievement; however, Caucasian students do not put as much emphasis on previous mastery experiences as Hispanic students, meaning that other factors are at play in influencing their self-efficacy.

Students Learning Style

According to Bosman and Schulze (2018), one way to address African learners' low math performance is to teach with their learning styles in mind. Using the Dunn and Dunn model and the VARK model, the research that this article is focused on examined the inter-relationships between Mathematics achievement and seven learning styles, as well as the learning styles of high and low achievers. To that end, 240 students from one High School in the North-West Province took part in the mainly quantitative analysis. The students were asked to fill out a standardized questionnaire. The findings revealed that a person's learning style had the strongest link to math success. In follow-up interviews with ten high achievers, the researchers discovered that context influenced learning style preferences: in addition to individual learning at home, high achievers preferred reading/writing and group learning in the classroom. According to the study, teachers should create a positive learning environment at school and use teaching methods that accommodate a variety of learning styles. More research is needed to determine the impact of demographic variables on learning style preferences in Mathematics.

Most students try to balance active, concrete, visual, sequential, and global learning styles, according to Mazlini et al., (2013). Furthermore, there is a major variation in visual, verbal, sequential, and global learning styles based on gender. There's also a connection between active and reflective learning styles and math performance.

Ma V. and Ma X. (2014) used a hierarchical linear model (HLM) of students nested within schools to demonstrate three main findings: (a) competitive learning had a statistically significant positive though the small relationship with Mathematics performance in all four countries, (b) cooperative learning had a statistically significant positive though the small relationship with Mathematics performance in all four countries, and (c) cooperative learning had a statistically significant positive though the small relationship with Mathematics performance in all four countries.

Teachers Factors and Students Mathematics Performance

Akpo (2012) shows in his analysis that various aspects of teachers' inputs such as educational qualification along with other factors such as teaching experience, subject specialization, standards-based professional development, standard-based classroom practices, and classroom management beliefs are linked to students‟ academic achievement in JSC Mathematics. Similarly, Abe (2014) finds a substantial gap between the output of students taught by trained and non-professional teachers. Teachers' teaching experience, according to Ewetan T.O. and Ewetan O.O. (2015), has a substantial impact on student's academic success in Mathematics and English Language. Similarly, Daso (2013) found that teachers' teaching methods, teachers' attitudes, and students' Mathematics achievement have a significant relationship. Furthermore, Wanjohi C. (2011) finds that teachers'

experience (B=0.972, t=2.080; p0.05), teachers' qualification (B=0.182, t=2.390; p0.05), teachers'/students' attitude (B=0.215, t=2.821; p0.05), and school category (B=0.064, t=0.352; p0.05) are predictors of students' Math results.

Similarly, Patosa (2017) discovered a connection between Instructors' mastery of Statistics and the number of related in-service training they attended. Furthermore, Kayani, Morris, Azhar, and Kayani (2011) argue that professional development through intensive in-service training will significantly improve the capacity of university/college teachers to operationalize the revolutionary definition of the teaching-learning process.Perceived teaching style (autonomy aid, structure, and involvement), on the other hand, has been related to math achievement and self-efficacy and can be used to predict them. The t-test results showed a difference in self-efficacy between males and females, but no difference in math achievement (Saravani et. al., 2017). Furthermore, teaching styles such as authoritative and authoritarian influence students' Mathematics motivation. An authoritative teaching style tends to be a better indicator of the two motivational constructs than an authoritarian teaching style (Aldhafri, S., & Alrajhi, M., 2014).

Pedro Canto-Herrera and Humberto Salazar-Carballo (2010) investigated the relationship between Mathematics teachers' principles and teaching styles and their students' academic achievement in Yucatan High Schools. In a survey of 72 High School Mathematics teachers, a student academic achievement score of 1241 was used. Each of the five categories of Mathematics teachers' teaching styles had a significant relationship with constructivist teaching values, as well as a correlation between the teaching style "Delegator" and student academic achievement. It was discovered that Mathematics teachers maintain consistency in what they believe and how they teach, implying that it is important to keep the teaching style and belief system in sync to achieve a satisfactory effect in Mathematics and that the teaching style "delegator" is linked to better academic performance in Mathematics.

Parents/Guardian Factor and Students Mathematics Performance

According to Visser, Juan, and Feza (2015) findings, both school and home environments play a significant role in African students' Mathematics success. They claim that higher levels of parental education have a substantial positive effect on learners' Mathematics success, in addition to school-based socio-economic factors. Assari, Boyce, Bazargan, and Caldwell (2020) found a statistically significant association between ethnicity (Asian American) and parental educational attainment on the results of students Math test score, suggesting that the boosting impact of high parental educational attainment on youth math function is smaller for Asian-American youth than for Non-Hispanic White youth. While high parental educational attainment is associated with better educational outcomes for children, this connection is weaker for Asian-American children than for non-Hispanic White children. Diminishing returns (weaker results of parental education in producing outcomes for ethnic minorities) have previously been demonstrated for Hispanics and Blacks.

Furthermore, Nicholas-Omeregbe (2010) finds a connection between parental educational attainment and student academic performance in Ogun State, Nigeria. Similarly, Farooq, Chaudhry, Shafiq, and Berhanu (2011) found that students' overall academic achievement, as well as achievement in the subjects of Mathematics and English, is influenced by their socioeconomic status (SES) and their parents' educational attainments. Higher and average socioeconomic levels have a greater impact on success than lower socioeconomic levels. It's fascinating to note that in terms of their children's academic success at school, parents' education matters more than their profession.

Sun and Li (2004), on the other hand, discovered that the marital disruption mechanism influences children's academic performance and psychological well-being at two-time points before and after parental divorce. Similarly, Frisco, Muller, and Frank (2007) proposed that, regardless of process, correlations between parents' union breakup and achievement may be causal.

According to Gubbins and Otero (2016), a nurturing parental engagement style, household income, and the parents' years of schooling are all linked to and substantially predict higher scores on the Language and Math tests.

3. Method

3.1 Research Design

This research used a descriptive correlational design. Descriptive correlational design is a form of design that looks for relationships between variables without manipulating or intervening. It just explains the relationship between those variables and makes no predictions about causality.

Descriptive-correlation research design measures the relation between two variables without either of them being controlled by the researcher (McCombes, 2019).

3.2 Sampling Technique

A stratified sampling procedure was used to choose the 211 student-respondets and their parent-respondents. A stratified sampling technique divides the target population into strata and then applies simple random sampling to those strata. On the other hand, purposive sampling was used to select the teacher-respondents.

3.3 Participants of the Study

The participants of the study were 211 Junior and Senior High School students, together with their 211 parents/guardians, and 4 faculty members of Laboratory High School of Nueva Ecija University of Science and Technology.

3.4 Materials and Instruments

The study utilized three different sets of the questionnaire specific for student-respondents, parent-respondents, and teacher-repondents.

3.4.1 Questionnaire for the Students

This consists of the student's demographic profile such as age and sex, students' attitude towards Mathematics, students' motivation in learning Mathematics and learning Style. The instrument used to describe the student's attitude toward Mathematics that was adopted from the study of Mutohir, et. al. (2018) entitled "The Development of a Student Survey on Attitudes Towards Mathematics Teaching-Learning Processes". Whereas, the part delving on the students' motivation to learn Mathematics was adapted from the study of Liu and Lin (2010), which is entitled, "The survey study of Mathematics Motivated Strategies for learning questionnaire for grade 10–12 Taiwanese students". On the other hand, the part which describes the students' Learning Style was adapted from the University of Texas Learning Center (2006).

3.4.2. Questionnaire for Teachers

This questionnaire consists of demographic profile such as length of service as a professional teacher, seminars/training attended, educational qualification, grade of students they are teaching, and teaching style. The teaching style questionnaire was adapted from the study of Paloş & Maricuțoiu (2013), which is entitled "Teaching for Successful Intelligence Questionnaire (TSI-Q) – a new instrument developed for assessing teaching style".

3.4.3 Questionnaire for Parents

It consists of parents/guardian demographic profile such as civil status, age, educational attainment, economic status, and source of income.

3.5 Reliability of the Instrument

Even though the instruments are standardized, the researcher performed a reliability test to assess their applicability in the Philippine environment, and the reliability coefficients for the student and teacher questionnaires were 0.81 and 0.92, respectively.

3.6 Data Collection

The researcher distributed and collected the questionnaire along with the student's module with the aid of student advisers at each grade level.

3.7 Data Analysis

In describing the respondent's Mathematics performance, age, sex, civil status, economic status, source of income, and parents/guardian educational attainment, frequency and percentage were used. In describing training/seminars and length of service frequency count was utilized and the level of teacher's educational qualification was also described.

The Pearson Product Moments Coefficient of Correlation, Kendall's Tau, and Chi-square tests were used to determine the relationship between Mathematics success and student, teacher, and parent variables.

The grading scale and verbal description of Mathematics Performance are given as 90 – 100 is outstanding, 85 – 89 is very satisfactory, 80 - 84 is satisfactory, 75 - 79 is fairly satisfactory, and 74 and below do not meet expectations.

The weighted mean and verbal interpretation were used to describe the student's attitude and motivation toward Mathematics, as well as their learning style and the responses of the teachers' teaching style. In terms of attitude, the ranges from 1.00 to 1.74 are very negative, 1.75 to 2.49 are negative, 2.50 to 3.24 are positive, and

3.25 to 4.00 are very positive. For motivation, 1.00 – 1.74 indicates strong disagreement, 1.75 – 2.49 indicates disagreement, 2.50 – 3.24 indicates agreement, and 3.25 – 4.00 indicates strong agreement. 1.00 – 1.74 is never, 1.75 – 2.49 is seldom, 2.50 – 3.24 is sometimes, and 3.25 – 4.00 is always in terms of learning and teaching style.

4. Results and Discussion

Student's Socio-Demographic Characteristics

Table 1 presents the socio-demographic characteristics of the student's respondents.

No.	Demographic Characteristics	Total	Percentage
1.	**Grades**		
	75 – 79	58	27.49%
	80 – 84	61	28.91%
	85 – 89	64	30.33%
	90 – 100	28	13.27%
2.	**Age**		
	11	1	0.47%
	12	5	2.37%
	13	39	18.48%
	14	40	18.96%
	15	55	26.07%
	16	31	14.69%
	17	26	12.32%
	18	12	5.69%
	19	2	0.95%
3.	**Sex**		
	Female	110	52.13%
	Male	101	47.87%

Students Grade

Table 1 shows that among the students-respondents, 27.49% (58) have fairly satisfactory grades, 28.91% (61) have satisfactory grades, 30.33% (64) have very satisfactory grades, and 13.27% (28) have outstanding grades in Mathematics.

Despite the pandemic, High School students still manage to increase their Mathematics scores, according to the results. The Mathematics performance of students is noteworthy, as 72.51 percent of them received an 80 percent or higher grade, while a lower percentage or 27.49 percent of them received a 79 percent or lower grade.

Students Age

Table 1 shows that among the student respondents, 0.47% (1) is 11 years old, 2.37% (5) are 12 years old, 18.48% (39) are 13 years old, 18.96% (40) are 14 years old, 26.07% (55) are 15 years old, 14.69% (31) are 16 years old, 12.32% (26) are 17 years old, 5.69% (12) are 18 years old, and 0.95% (2) are 19 years old.

Based from the data gathered, most of the respondents are 15 years old followed by 14, 13, 16, 17, 18, 12, 19, and the least is 11 years old.

Students Sex

Table 1 also shows that student-respondents consist of 52.13% (110) females and 47.87% (101) males. It implies that most of the student respondents are female.

Student's Attitude towards Mathematics

Table 2 presents the weighted mean and verbal interpretation of student's attitude towards Mathematics.

Interest and Attitude Towards Mathematics	Weighted Mean	Verbal Interpretation

When I see a math problem, I get excited.	2.71	Positive
I like working on the homework given by my Mathematics teacher.	2.96	Positive
Mathematics is an interesting subject.	3.18	Positive
I am eager to participate in discussions that involve Mathematics.	2.90	Positive
Mathematics class keep my attention – I did not get bored.	2.92	Positive
I have self-confidence in learning math.	3.02	Positive
I enjoy learning math with my friends	3.28	Very Positive
I feel comfortable working on math problems	2.90	Positive
I want to develop my math skills	3.55	Very Positive
Math is important in everyday life	3.47	Very Positive
Average WM	3.09	Positive

1.00 – 1.74 Very Negative

1.75 – 2.49 Negative

2.50 – 3.24 Positive

3.25 – 4.00 Very Positive

Table 2 shows the statements regarding the attitude of the student-respondents towards Mathematics. It is shown that that the following statements were rated as very positive: "they enjoy learning math with their friends (wm=3.28); "they want to develop their math skills" (wm=3.55); and "Math is important in everyday life" (wm=3.47). While, the following statements were rated positive: "when they see a math problem, they get excited" (wm=2.71); "they like working on the homework given by their Mathematics teacher" (wm=2.96); "Mathematics is an interesting subject" (wm=3.18); "they are eager to participate in a discussion that involves Mathematics" (wm=2.90); "Mathematics class keep their attention – they did not get bored" (wm=2.92); "they have self-confidence in learning math" (wm=3.02); "they feel comfortable working with math problems" (wm=2.90). Their average mean perception of their interest and attitude towards Mathematics was 3.09, which can be interpreted as "positive".

Students claimed that they enjoy Mathematics and get excited when working on problems, according to the findings. It also shows that the students consider Mathematics to be an important part of their everyday lives. When it comes to Mathematics, students seem to be calm and at ease. Furthermore, students have decided that Mathematics is interesting to them and that they have a good attitude about it.

Students Motivation

Table 3 presents the weighted mean and verbal interpretation of student's motivation.

Motivation	**Weighted Mean**	**Verbal Interpretation**
In math class, I would like to have some challenging materials and they will make me learn more.	3.21	Agree
I would like to have curiosity-initials materials in math class even they are quite difficult.	3.19	Agree

My most wanting is to get the best grades in math class.	3.48	Strongly agree
The strategy in solving the problem I learn from the math class can be applied in other classes	3.32	Strongly agree
I am interested in the learning material in math class.	3.17	Agree
If I have the correct learning pattern to learn math, I will learn better in the class.	3.43	Strongly agree
If I study hard enough, I can understand the content of the learning materials used in math class.	3.41	Strongly agree
I believe that I will have excellent math grades in math class.	3.08	Agree
I believe that I can understand the most difficult part of the math materials on my own.	2.93	Strongly agree
The skills I learn from the math class can be applied in other classes	3.25	Strongly agree
Average WM	3.25	Strongly agree

1.00 – 1.74Strongly disagree

1.75 – 2.49 Disagree

2.50 – 3.24Agree

3.25 – 4.00Strongly agree

Table 3 shows the statements describing motivation towards Mathematics that students from NEUST Gabaldon Campus strongly agreed: “their most wanting is to get the best grades in Math class” (wm=3.48); “the strategy in solving a problem they learn from the math class can be applied in other classes” (wm=3.32); “If they have the correct learning pattern to learn math, they will learn better in the class” (wm=3.43); “If they study hard enough, they can understand the content of the learning materials used in math class” (wm=3.41); “they believe that they can understand the most difficult part of the math materials on their own” (wm=2.93); and “the skills they learn from the math class can be applied in other classes” (wm=3.25). Their average mean perception of their motivation is 3.25, which can be interpreted as strongly agree.

According to the findings, the students' top goal in Mathematics is to reach the highest possible score. They are enthralled with solving mathematical problems, including the most difficult ones. In other words, the majority of High School students are motivated to learn and excel in Math classes. Even amidst a pandemic, students are eager to learn, and their inspiration continues to inspire them. As a consequence of the circumstances, the student's capacity to learn does not fully deteriorate.

Students Learning Style

Table 4 presents the weighted mean and verbal interpretation of students learning style.

Students Learning Style		
Visual	**Weighted Mean**	**Verbal Interpretation**
I prefer to see information written on the board and supplemented by visual aids and assigned readings	3.43	Always
I like to write things down or take notes for visual review.	3.40	Always
I am skilful with and enjoy interpreting graphs and charts.	3.10	Sometimes
I can easily understand and follow directions on a map.	3.15	Sometimes
I can understand a news article better by reading about it in the newspaper or online rather than by listening to a report about it on the radio or internet.	3.21	Sometimes
I think the best way to remember something is to picture it in my mind.	3.23	Sometimes
I am good at working and solving jigsaw puzzles and mazes.	2.95	Sometimes
I prefer obtaining information about an interesting subject by reading about it.	3.20	Sometimes

Average weighted mean	3.21	Sometimes
Auditory	**Weighted Mean**	**Verbal Interpretation**
I can remember best by listening to a lecture that includes information, explanations and discussions.	3.34	Always
I require explanations of diagrams, graphs, or visual directions.	3.36	Always
I can tell if sounds match when presented with pairs of sounds.	3.18	Sometimes
I do best in academic subjects by listening to lectures and tapes.	3.19	Sometimes
I learn to spell better by repeating words out loud than by writing the words on paper.	3.23	Sometimes
I would rather listen to a good lecture or speech than read about the same material.	3.18	Sometimes
I prefer listening to the news on the radio or online rather than reading about it in a newspaper or on the internet.	3.04	Sometimes
I follow oral directions better than written ones.	3.06	Sometimes
Average weighted mean	3.20	Sometimes
Tactile	**Weighted Mean**	**Verbal Interpretation**
I prefer to use posters, models, or actual practice and other activities in class.	3.12	Sometimes
I enjoy working with my hands or making things.	3.40	Always
I can remember best by writing things down several times.	3.19	Sometimes
I play with coins or keys in my pocket.	2.73	Sometimes
I chew gum, smoke or snack while studying.	2.04	Seldom
I learn the spelling of words by "fingerspelling" them.	2.69	Sometimes
I grip objects in my hands during learning periods.	2.84	Sometimes
I feel very comfortable touching others hugging, handshaking, etc.	3.01	Sometimes
Average weighted mean	2.88	Sometimes

1.00 – 1.74Never

1.75 – 2.49 Seldom

2.50 – 3.24Sometimes

3.25 – 4.00Always

Visual Learning Style

Table 4 shows the statements regarding the learning style of the students. In visual learning, the students always: “prefer to see information written on the board and supplemented by visual aids and assigned readings” (wm=3.43); “like to write things down or take notes for visual review” (wm=3.40); they are sometimes: “skillful with and enjoy interpreting graphs and charts” (wm=3.10); “can easily understand and follow directions on a map” (wm=3.15); “can understand a news article better by reading about it in the newspaper or online rather than by listening to a report about it on the radio or internet” (wm=3.21); “think the best way to remember something is to picture it in my mind” (wm=3.23); “good at working and solving jigsaw puzzles and mazes” (wm=2.95); “prefer obtaining information about an interesting subject by reading about it” (wm=3.20). Their average response on visual learning is 3.21, which can be interpreted as sometimes.

Students learn better when they see facts or data written down or when visual aids are used. They enjoy interpreting graphs, charts, and maps on occasion. Furthermore, rather than listening, they often comprehend knowledge by reading text. Students as a whole use the visual learning style to interpret and understand knowledge.

In this time of the pandemic, modular learning is mandated, and students are required to learn by reading modules to complete activities. Without the presence of teachers, students must be able to comprehend written text to digest the large amount of knowledge provided to them.

Auditory Learning Style

As to auditory learning, the students always: "remember best by listening to a lecture that includes information, explanations and discussions" (wm=3.34); "require explanations of diagrams, graphs, or visual directions" (wm=3.36); they sometimes: "can tell if sounds match when presented with pairs of sounds" (wm=3.18); "do best in academic subjects by listening to lectures and tapes" (wm=3.18); "learn to spell better by repeating words out loud than by writing the words on paper" (wm=3.23); "would rather listen to a good lecture or speech than read about the same material" (wm=3.18); "prefer listening to the news on the radio or online rather than reading about it in a newspaper or on the internet" (wm=3.04); "follow oral directions better than written ones" (wm=3.06). Their average response on auditory learning is 3.20, which can be interpreted as sometimes.

According to the data presented above, students often recall or comprehend a lesson when it is discussed with them by someone else. When they listen to recorded audio, radio, or television, they will sometimes learn or understand a lesson. Furthermore, as the material is repeated in a louder voice, it aids their learning.

Due to the limitations of face-to-face learning, the delivery of lessons through direct discussion is currently restricted. Teachers can discuss their lessons using an online forum, but internet access is one of the main barriers to high-quality information delivery. Additionally, while teachers are capable of creating video presentations, not all students can afford such technology, and some students are unable to establish better connectivity due to a weak internet connection.

Tactile Learning Style

Meanwhile in tactile learning the students always: "enjoy working with my hands or making things" (wm=3.40); they sometimes: "prefer to use posters, models, or actual practice and other activities in class" (wm=3.12); "remember best by writing things down several times" (wm=3.19); "play with coins or keys in their pocket" (wm=2.73); "learn the spelling of words by "fingerspelling" them" (wm=2.69); "grip objects in their hands during learning periods" (wm=2.84); "feel very comfortable touching others hugging, handshaking, etc." (wm=3.01); they seldom "chew gum, smoke or snack while studying" (wm=2.04). Their average response on tactile learning style is 2.88, which can be interpreted as sometimes.

Students may also learn by making or doing something, as John Dewey put it, "learning by doing." They can learn by manipulating real objects or creating a movement while learning. They rarely learn while they are feeding, chewing, or smoking something that is not appropriate for them. When students are trying to understand something, they can use the tactile style.

The above discussion shows that students use the three different learning style, which the researcher perceive that every student is different and unique in their ways. To comprehend various lessons, students employ various techniques. This means that relying solely on modular learning to achieve optimum learning results is unsustainable.

Teachers Educational Qualification, Number of training/Seminar Attended, and Number of Years in Service

Table 5 presents the teacher's educational qualification, number of training/seminars attended, and number of years in service.

Faculty	Educational Qualification	Number of training and seminar attended	Number of Years in Teaching
1	Taking Doctorate Degree	20	11
2	Master's Degree	40	30
3	Taking Doctorate Degree	45	29
4	Doctorate Degree	30	18

Teachers' educational qualification

Table 5 shows the educational qualification of the faculty member of NEUST Laboratory High School. Faculty 1 is taking a doctorate degree, faculty 2 has taken his masteral degree, faculty 3 is taking a doctorate degree, and faculty 4 has completed her doctorate degree.

Data shows that the faculty member of the Mathematics department in the Laboratory High School is competent enough in delivering a lesson to the students. This can be manifested form their academic qualifications as they have already accumulated a higher degree of learning.

Numbers of Training and Seminar Attended

Table 5 also shows the number of training and seminars attended by the faculty members. Faculty 1 has attended 20 trainings and seminars, faculty 2 have 40, faculty 3 have 45, and faculty 4 have participated 30 trainings and seminars.

This implies that the faculty were able to sustain professional development through various trainings and seminars that may enhance their strategies or ways of teaching. These training and seminars may improve the faculty in different aspects.

Length of service as a professional teacher

Table 5 also shows the length of service of the faculty member as a professional teacher. Faculty 1 has been in the teaching field for 11 years, faculty 2 with 30 years, faculty 3 with 29 years, and faculty 4 with 18 years in service.

This data shows that the faculty members have accumulated actual trainings and skills from long and arduous years of experience.

Teaching Style

Table 6 presents a weighted mean and verbal interpretation of the teachers teaching style.

Teaching Style		
Creative Abilities	**wm**	**Verbal Interpretation**
In my teaching activity, I valorize my students' imagination in solving problems (imagining situations, exploring new ideas, etc.).	4	Always
In my teaching activity, I encourage my students to imagine different situations and then think about what could happen if things were as they had imagined them to be.	4	Always
By the way, I teach, I stimulate my students to discover new ways of functioning, new principles or laws that can be applied in various situations.	3.5	Always
By the way, I structure my teaching, I stimulate my students' creative abilities.	3.5	Always
In my teaching activity, I use games (word games, role-playing games etc.) to make learning easier.	3.25	Always
Average weighted mean	3.65	Always
Reproductive abilities	**wm**	**Verbal Interpretation**
By the way, I structure my teaching, I stimulate my students' reproductive abilities.	3.25	Always
In my teaching activity, I favour and value the use of memorizing in the learning process.	2.75	Sometimes
In my teaching activity, I focus on creating situations where I can develop students' memorizing ability.	3	Sometimes
I prefer a teaching style where I create situations for my students to reproduce/repeat the information accumulated in-class activity.	3.75	Always
In my teaching activity, I focus on my students gathering a large amount of information.	3.5	Always
Average weighted mean	3.25	Always

Analytical abilities	**wm**	**Verbal Interpretation**
I prefer teaching situations where students can assess the typical value of various given information (various laws, models, methods, etc.).	3.75	Always
In my teaching activity, I stimulate my students' critical thinking (assessing, testing solutions, choosing the most adequate, rejecting the less adequate, etc.).	4	Always
When I teach, I focus on my students' capacity to analyze the information provided (why something happens).	3.75	Always
In my teaching activity, I emphasize my students' capacity to explain the way certain processes unfold or certain thing's function (the way something happens).	4	Always
I prefer teaching situations where students are given the opportunity to compare and find differences between two or several suggested situations, problems, pieces of information.	3.75	Always
Average weighted mean	3.85	Always
Practical abilities	**wm**	**Verbal Interpretation**
When teaching in class I focus on my students' practical activities (working on projects, action plans, experiments, applying in practice, etc.)	3.75	Always
By the way, I teach, I encourage my students to use the theoretical aspects learned in solving various practical problems.	3.75	Always
In my teaching activity, I encourage my students to experiment in practice the things they know in theory.	3.75	Always
After teaching a lesson, I encourage my students to find practical applications for what they have learned.	4	Always
Through teaching, I encourage my students to implement in practice the plans and strategies theoretically verified in class.	3.75	Always
Average weighted mean	3.8	Always

1.00 – 1.74never

1.75 – 2.49 seldom

2.50 – 3.24sometimes

3.25 – 4.00always

Teaching Style

Creative Abilities

Table 6 shows the statements regarding the teaching style of the teachers. In visual learning the teacher always: "valorize their students' imagination in solving problems (imagining situations, exploring new ideas, etc.)" (wm=4.00); "encourage their students to imagine different situations and then think what could happen if things were as they had imagined them to be" (wm=4.00); "stimulate their students to discover new ways of functioning, new principles or laws that can be applied in various situations" (wm=3.50); "stimulate their students' creative abilities" (wm=3.50); "use games (word games, role-playing games etc.) to make learning easier" (wm=3.25); and their average mean in creative abilities is 3.65, which can be interpreted as always.

The data reveals that teachers use a variety of innovative teaching strategies. They use a variety of techniques, such as games and diverse scenarios, to encourage students to think critically. They enable students to learn and explore new concepts while also allowing them to apply principles or theories in their everyday lives. It demonstrates that teachers place a greater emphasis on students' critical thinking abilities than on their lower levels of learning.

Reproductive Abilities

In reproductive abilities the teachers always: "stimulate their students' reproductive abilities" (wm=3.25); "prefer a teaching style where they create situations for their students to reproduce/repeat the information accumulated in-class activity" (wm=3.75); "focus on their students gathering a large amount of information" (wm=3.5); they sometimes: "favour and value the use of memorizing in the learning process" (wm=2.75); "focus on creating situations where they can develop students' memorizing ability" (wm=3.00); and the average mean is 3.25, which can be interpreted as always.

The data reveals that teachers constantly encourage their students to replicate or create a performance based on the vast amount of knowledge available in class. They encourage their students to use their memorization skills on occasion. To put it another way, they constantly use their reproductive capacities to teach the students. Teachers model ability and then encourage their students to demonstrate it and create something.

Analytical Abilities

In analytic abilities the teachers always: "prefer teaching situations where students can assess the typical value of various given information (various laws, models, methods, etc.)" (wm=3.75); "stimulate their students' critical thinking (assessing, testing solutions, choosing the most adequate, rejecting the less adequate, etc.)" (wm=4.00); "focus on their students' capacity to analyze the information provided (why something happens)" (wm=3.75); "emphasize my students' capacity to explain the way certain processes unfold or certain thing's function (the way something happens)" (wm=4.00); "prefer teaching situations where students are given the opportunity to compare and find differences between two or several suggested situations, problems, pieces of information" (wm=3.75); and the average weighted mean on analytical abilities is 3.85, which can be interpreted as always.

Teachers often encourage their students to analyze knowledge, issues, or circumstances based on the given data, allowing them to interpret or clarify what they are learning. When offering lessons to their students, the instructor often employs their analytic skills. The analytical ability is required of a Mathematics teacher because problems or circumstances in Mathematics necessitate analytical abilities.

Practical Abilities

Meanwhile in practical abilities, the teachers always: "focus on their students' practical activities (working on projects, action plans, experiments, applying in practice, etc.)" (wm=3.75); "encourage their students to use the theoretical aspects learned in solving various practical problems" (wm=3.75); "encourage their students to experiment in practice the things they know in theory" (wm=3.75); "encourage their students to find practical applications for what they have learned" (wm=4.00); "encourage their students to implement in practice the plans and strategies theoretically verified in class" (wm=3.75); and the average weighted mean on practical abilities is 3.80, which can be interpreted as always.

The information above demonstrates that the teachers are always concerned with their students' practical skills. They offer their students the opportunity to implement or exercise theory learned in class through assignments, action plans, and experiments. They concentrate on the practical implementation of what they've been teaching in class, enabling students to gain a comprehensive understanding of the content.

The data, further, implies that the teacher uses a variety of teaching methods to conduct their lessons. It demonstrated that the teachers are capable. However, in the event of a pandemic, those abilities are reduced. Teachers cannot offer optimal learning to their students simply by distributing modules to them. Both educators and learners cannot be satisfied with modular learning. One of the challenges in providing lessons is the lack of internet access. Moreover, some students are unable to afford electronic devices such as smart phones and laptops. Teachers and students, nevertheless, are doing their best to deliver and acquire knowledge and skills.

Parents/Guardians Socio-Demographic Characteristics

Table 7 presents the socio-demographic characteristics of parents/guardian respondents.

No.	Demographic Characteristics	Total	Percentage
1.	**Civil Status**		
	Married	181	85.78%
	Separated	19	9.00%

	Widow	11	5.21%
2.	**Age**		
	39 and below	41	19.43%
	40 – 46	88	41.71%
	47 – 53	58	27.49%
	54 – 60	14	6.64%
	61 – 67	6	2.84%
	68 and above	4	1.90%
3.	**Economic Status**		
	Below P10, 957.00 monthly income	89	42.18%
	Low income but not poor	88	41.71%
	Lower middle	21	9.95%
	Middle	6	2.84%
	Upper middle	7	3.32%
4.	**Educational Attainment**		
	No elementary diploma	1	0.47%
	Elementary diploma	7	3.32%
	Unfinished High School	15	7.11%
	High School diploma	131	62.09%
	College degree	50	23.70%
	Master's degree	6	2.84%
	Doctorate	1	0.47%
5.	**Source of Income**		
	Business	43	20.38%
	Farming	108	51.18%
	Government employee	19	9.00%
	Labourer	37	17.54%
	Overseas Filipino Worker	4	1.90%

Civil Status

Table 7 showed the distribution of the parents/guardian respondents according to their civil status. The respondents comprise 85.78% (181) of married parents/guardian, 9% (19) separated, 5.21% (11) widowed.

The data showed that majority of the the parent-respondents are married, which implies that they are hands-on in guiding their children. But it is also noticeable that 14.21% are single parents, which may imply that they don't have a partner to support them in teaching and guiding their children.

Age

Table 7 also showed the distribution of-parent respondents according to age scale. The age of 40 to 46 years old consists of 41.71% (88), followed by 47 to 53 years old with 27.49% (58), 39 and below with 19.43% (41), 54 to 60 years old with 6.64% (14), 61 to 67 years old with 2.84% (6), and 68 and above with 1.90% (4).

The data reveals that majority of the parents who responded are under the age of 60, which may imply that they are still capable of teaching or guiding their children through certain school lessons.

Economic Status

Table 7 also shows that among the parents' respondents, 42.18% (89) have monthly income of P10, 957 and below, 41.71% (88) have low-income but not poor, 9.95% (21) are in the low middle class, 2.84% (6) are in the middle class, and 3.32% are in the upper-middle class.

The data on table 12 shows that most of the parents/guardians-respondents have low income. This implies that most of the students in NEUST Laboratory High School don't have that high capability to afford gadgets that they will use in the distance learning. Furthermore, even though NEUST LHS reasonable miscellaneous and tuition fee, the parents still choose it for their children to enroll. It may imply that the parents have high expectation of NEUST in terms of quality education.

Educational Attainment

Table 7 shows that among the parents/guardians-respondents, 62.09% (131) are High School graduate, 23.70% (50) have college degree, 7.11% (15) does not finish High School, 3.32% (7) are elementary graduate, 2.84% (6) have master's degree, 0.47% (1) no elementary diploma, and 0.047% (1) have doctorate degree.

Findings show that most of the parents/guardians-respondents are High School graduates, followed by a number of college graduates. The majority of the parents/guardians-respondents have the utmost capacity to teach and guide their children in learning. In this time of pandemic where the assistance of teachers is limited in terms of instruction, the parents/guardians are the ones who will guide their children in the learning process.

Source of Income

Table 7 shows that among the parents/guardian-respondents, 51.18% (108) are farmers, 20.38% (43) are businessmen, 17.54% (37) are laborers, 9.00% (19) are government employees, and 1.90% (4) are overseas Filipino workers.

Most of the parents/guardian-respondents are farmers. This might be related to the fact that Gabaldon, Nueva Ecija have lots of agricultural lands. Other than farming, parents and guardians' source of income are from their own business, working as laborers, as government employee and working overseas. It shows that most of the parents/guardian are present to guide their children. This may mean that they can spare time to teach and guide their children in the learning process. Furthermore, they may allot enough time for their children and family, given that work from home is implemented.

Relationship of Mathematics Performance and Student Factors

Table 8 presents the correlation matrix of Mathematics performance, attitude, motivation, learning style and age of the students.

Correlations

			Attitude	Motivation	Visual	Auditory	Tactile	Students Age	Sex
Correlations	Grades	Correlation Coefficient	.171**	.186**	.101*	.124*	.026	.000	$\varkappa\ value = 37.540a$ Df = 37
		Sig. (2-tailed)	.000	.000	.043	.013	.591	.998	.444
		N	211	211	211	211	211	211	211

***. Correlation is significant at the 0.05 level (2-tailed).**
****. Correlation is significant at the 0.01 level (2-tailed).**

Table 8 shows that there is a highly significant relationship between students' Mathematics performance with their attitude towards Mathematics ($r=0.171$, $p<0.01$) and motivation to learn Mathematics ($r=0.186$, $p<0.01$). A significant relationship was also observed between Mathematics performance with visual learning ($r=0.101$, $p<0.05$) and auditory learning ($r=0.124$, $p<0.05$). However, there is no significant relationship between Mathematics performance with tactile learning ($r=0.024$, $p>0.05$), age ($r=0.00$, $p>0.05$), and sex ($\varkappa=37.54$, $p>0.05$).

The data implies that if a student has a positive attitude towards Mathematics, they might increase their potential in learning Mathematics. A positive attitude towards Mathematics leads to a productive performance. It also shows that attitude is a determinant of Mathematics performance among students. This was also observed by Andamon and Tan (2018) in the 225 grade 7 students of Catholic Schools in Valencia City. Based from their findings, the students have a fair positive attitude towards Mathematics, but highly significant relationship between students' attitude and performance in Mathematics was observed.

Likewise, the data also implies that if a student is motivated to learn Mathematics, they will also show great potential in learning Mathematics. Motivation serves as fuel for the students in striving to learn the subject. It also

implies that motivation is a determinant of Mathematics performance among students. Yunus and Ali (2009) also showed that overall motivation has a significant relationship with Mathematics achievement.

Data also implies that visual and auditory learners learn better in Mathematics than the tactile learners in the new normal of the education system. It is because students in this time of the pandemic learn mostly through modules and video tutorials. Besides, learning through seatwork's, board works and other drills is limited, which is a strong style of the tactile learners in learning. The data also implies that in this time of the pandemic, the determinants of students Mathematics performance in terms of style in learning are visual and auditory learning. Meanwhile, in this time of the pandemic, tactile learning is not a determinant of the Mathematics performance of the students. Apipah, Kartono, and Isnarto (2018) also found that students with visual learning styles have the highest mathematical connection skill, students with kinesthetic learning styles have the average mathematical connection ability, but students with auditory learning styles have the lowest mathematical connection ability in their analysis.

Nevertheless, age and sex are not directly related to students Mathematics performance. It implies that whether the students are younger or older it does not guarantee academic success in Mathematics. It also implies that male and female students have equal ability in Mathematics. Sex does not foresee the performance of the students in Mathematics. Hence, age and sex are not determinants of the Mathematics performance of High School students. Lindberg, et. al., (2010) support the assessment that there is no association between gender and Mathematics performance. Josiah and Adejoke (2014) also found that sex, age, and Mathematics anxiety groupings (low, medium, and high) all had no association in achievement.

Relationship of Mathematics Performance and Teacher Factor

Table 9 presents the correlation matrix of Mathematics performance, training/seminar, length of service, educational qualification, and teaching styles.

Correlations

			Creative Abilities	Reproductive Abilities	Analytical Abilities	Practical Abilities	Educational Qualification	Training/ Seminar	Length of service
Correlation	Grades	Correlation Coefficient	.230**	.175**	.172**	.167**	.147**	.094	.024
		Sig. (2-tailed)	.000	.001	.001	.004	.008	.087	.650
		N	211	211	211	211	211	211	211

****. Correlation is significant at the 0.01 level (2-tailed).**

Table 9 shows that there is a highly significant relationship between Mathematics performance and teacher's teaching style: creative abilities ($r=0.230$, $p<0.01$); reproductive abilities ($r=0.175$, $p<0.01$); analytical abilities ($r=0.172$, $p<0.01$); and practical abilities ($r=0.167$, $p<0.01$). A highly significant relationship is also observed between Mathematics performance and the educational qualification of the teachers ($r=0.147$, $p<0.01$). But the significant relationship between Mathematics performance and training/seminar ($r=0.094$, $p>0.05$), and length of service ($r=0.024$, $p>0.05$) was not observed.

The data implies that the different teaching style manifested by the teachers had a direct contribution to the Mathematics performance of the student. It also connotes that variations in teaching style cater to individual differences. Also, the teaching styles of the teacher was a determinant of Mathematics performance. Besides, Canto-Herrera and Salazar-Carballo (2010) concluded that it is important correspondence between the teaching style and belief system to achieve a satisfactory effect in Mathematics and the teaching style "delegator "is associated with better academic performance in Mathematics.

Data also shows that educational qualification is directly related to the student's Mathematics performance. It only shows that the greater the educational attainment of the teacher the more they have learned and the more they can contribute to the enhancement of the learner's performance. Thus, educational qualification is a determinant of Mathematics performance. In the study of Dodeen, et. al., (2012), they found out that some teacher's qualification and practices are related to the student's Mathematics performance.

On the other hand, trainings/seminars attended and length of service as a professional teacher does not contribute to the performance of the students in Mathematics. Thus, these variables are not the determinants of the Mathematics performance of the students amidst pandemic.

Given the new set up in learning, the teacher's ability and extent of learning opportunities provided for the students learning is limited. This may support the findings that regardless of the length of teaching experience and trainings/seminars attended, the teachers are only confined at providing self-learning modules and supplementary activities during this pandemic where distance learning is implemented.

Relationship of Mathematics and Parents/Guardians Factor

Table 10 presents the correlation matrix of Mathematics performance, parents/guardian age, educational attainment

Correlations

			Parents Age	Parents Education	Economic Status	Civil Status	Source of Income
Correlations	Student Grades	Correlation Coefficient	.012	.176**	.181**	$\varkappa$ *value* = 42.27a Df = 37	$\varkappa$ *value* = 98.584a Df = 37
		Sig. (2-tailed)	.801	.001	.001	.459	.132
		N	211	211	211	211	211

****. Correlation is significant at the 0.01 level (2-tailed).**

Table 10 shows highly significant relationship between Mathematics performance and parents' educational attainment ($r=0.176$, $p<0.01$) and parents' economic status ($r=0.181$, $p<0.01$). However, there is no significant relationship between Mathematics performance and parent's age ($r=0.012$, $p>0.05$), civil status ($\varkappa=42.27$, $p>0.05$) and source of income ($\varkappa=98.584$, $p>0.05$).

It shows that the higher the educational attainment of the parents or guardian the better the performance of the students in Mathematics. It is because, by this time of pandemic where the students are not allowed to go outside and have formal schooling, the parents or guardians serve mostly as facilitators of their children's learning at home. Parents are the ones who guide and teach their children. Furthermore, if the parents are educated or literate enough, then there is no struggle for them to teach their children. Hence, parents/guardian educational attainment is a determinant of Mathematics performance amidst pandemic. In support of this, Kodippili (2011) showed that there is a strong positive relationship between parent's education level and their children Mathematics achievement.

Data also implies that the higher the economic status of parents, the better the performance of the students in Mathematics. Gadgets like cellphone, laptops and as well as internet connectivity are crucially needed by the students during distance learning. It helps them to browse and search for information related to their lesson which is instrumental to their learning. So, parents who can afford these educational materials, may have an edge to this new set up. But for parents or guardians who don't have to capacity to purchase these gadgets, the availability of learning materials for their children is limited. As a result, limited information or knowledge is acquired by their children. As a result, the students with parents that are economically incapable are deprived of their learning experience. Thus, parents/guardian's economic status is a determinant of Mathematics performance. Likewise, Visser, Juan, and Feza (2015) suggest that parent's socio-economic status have an impact on the student's Mathematics performance.

Conversely, parents/guardians' age, civil status, and source of income are not related to the Mathematics performance of their children. Whether they are young or old, parents are equally likely to have the initiative to guide and teach their children. Likewise, parents who are married, single or widow have the equal capacity to teach their children. Also, parents' job or work does not determine the Mathematics performance of their children, it shows that the parents/guardian have ample time to guide and teach their children. Thus, parents/guardians age, civil status and source of income are not determinants of Mathematics performance.

5. Conclusions

Most of the students' respondents perform very satisfactory in Mathematics. Most of the students' respondents are 15 years old and the least is 11 years old and most of them are females. The student-respondents showed a positive attitude towards learning Mathematics and they are strongly agreed that they are motivated to learn Mathematics. The student-respondents more frequently prefer visual style, auditory style than the tactile style of learning. The faculty members of the Mathematics department in the Laboratory High School have higher academic attainments. Varieties of seminars and training were attended by the faculty member to improve their teaching capability. Faculty member goes through long and arduous years of experience in the field of teaching and learning process. Faculty members of the Mathematics department in the Laboratory High School practice different learning styles in teaching. Most of the parents/guardian-respondents are married and most of them are within the age range of 40-46 years old. The majority of the parents/guardians-respondent have low income, which implies that most of the students in NEUST Laboratory High School cannot afford gadgets that they can use in distance learning. Most of the parents/guardians-respondents are High School graduate followed by college graduate, which implies that the majority of the parents/guardians' respondents can facilitate their children in their learning process. The majority of the parents/guardian-respondents are farmers. Students' attitude towards Mathematics, motivation, visual and auditory learning, teachers teaching style (creative, reproductive, analytical, and practical abilities), teachers' educational qualification, and parents/guardian educational attainment and economic status are determinants of Mathematics performance of High School students amidst this pandemic. Student's age, sex and tactile style of learning, teacher's number of training/seminars attended and length of service as a professional teacher, and parents age, civil status and source of income are found to have no association to Mathematics performance in this time of the pandemic.

Recommendations

Teachers may construct or develop modules and other teaching materials that are not expensive for the students and parents. Teachers may construct or develop creative modules that will enhance or motivate students to strive in learning Mathematics. Modules that have well written and interesting visual presentation, and activity related to the student's home environments. At this time of the pandemic, teachers may exert more effort in delivering a lesson in varieties of modality. The teacher may continue to develop their teaching styles by taking graduate degrees. Teachers and parents should continue collaborating in developing the positive attitude of the students in learning Mathematics. The institution together with other government agencies should conduct extension programs dealing with the improvements of parents/guardian basic educational literacy. The institution, local and national government together with private sectors should collaborate for the funding of educational materials or gadgets for the students to use in schooling. For those researchers who want to find out the other factors that determine the student's Mathematics performance amid pandemic, use student's IQ, religion, emotional state, engagement, and mode of learning.

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