CORRELATES OF MATHEMATICS PERFORMANCE OF GRADE 9 LEARNERS IN SECONDARY SCHOOLS DIVISION OF EASTERN SAMAR AMIDST PANDEMIC

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ABSTRACT

The existence of the COVID-19 pandemic brought extraordinary challenges in the division of Eastern Samar, many factors affiliating in terms of academic performance, especially in mathematics subjects, learners, homes, and schools. The results showed that most of the respondents were academic achievers on their previous grade levels, wherein their parents were high school graduates, high-income earners, longer distance from their residence to the school of four kilometers and above, and most teachers monitor learners' progress only once per week. Hence, available learning materials at home and school are android cellphones, books, and references that serve as a reading guide and access to learning towards a modular approach in teaching. However, the respondents' attitudes toward mathematics and math anxiety were average levels. Moreover, the data revealed that grade 9 learners performed not satisfactorily in mathematics performance. Using inferential statistics specifically Pearson r, Point-biserial r, and Spearman rho correlational analysis it was found that the parameters of learners and home factors had a significant impact, while school factors had no significant impact on mathematics performance. Based on these findings, the researcher recommends that parents be actively engaged in supporting, providing, and sustaining adequate learning materials in new normal education. Schools must improve learning materials, and facilities, and always monitor learning outcomes provided with necessary interventions for academically challenging learners.

KEYWORDS: *covid-19 pandemic, correlation, grade 9 learners, mathematics performance, mathematics attitudes, and anxiety*

I. INTRODUCTION

The existence of the COVID-19 pandemic brought extraordinary challenges to the learners, parents, teachers, and schools in the division of Eastern Samar. Thus, all these challenges it's affiliated with so many problems for our students in terms of academic performance, especially in mathematics subjects. However, the National Council of Teachers of Mathematics (2001) made this statement: "One of the curious aspects of our society is that it is socially acceptable to take pride in not being good in Mathematics (p.35-36)." In addition, the program for international student assessment (2018), a student assessment of 15-year-old learners across 79 countries done by the Organization for Economic Cooperation and Development (OECD), the Philippines ranked last among 79 countries in Reading Comprehension and also ends up in the low 70s in Mathematics and Science. Six different things could affect the learning of students: brain processing, academic self-confidence and senses, physical needs, environment, social needs, and emotional attitudes (Dwyer, C. A. et al. 2007). The home factor has a greater impact on the performance of students learning. The socioeconomic status condition of the family continues to be a powerful predictor of the academic success of the students. This shows that the family has an important role in achieving higher academic performance for students. However, families of public-school students have a greater impact on the availability of material resources and it believes that parents can both supplement and complement school efforts. The family background of the students is inferential in learning, even in the subject of mathematics, which may appear to be learned exclusively in school (Rivera, 2011). Another factor that could affect the performance of students' availability of instructional and reading materials in school. The DepEd said that, for the school year 2012 – 2013, it achieved a national average classroom-to-student ratio of 1:40 for elementary and 1:50 for high school. However, DepEd records also show that, for the same school year, the classroom-to-student ratio was 1:75 for elementary and 1:74 for high school in Metro Manila. (2) Lack of books and other reading materials. According to Pangilinan (2015) the rapid increase in student ratio, some schools have a 3:1 student-book ratio; the ideal number is 1:1 which is impossible. Learners from far-flung barangays are within walking distance with so many hours to attend their classes every day and there is a problem in providing equity of access to quality education, particularly for those who live in rural areas in society. However, the same scenario has been foreseen to grade 9 learners in secondary schools' division of Eastern Samar that would affect performance amidst the pandemic.

With these aforementioned reasons and factors that could affect the mathematics performance of learners, the researcher was motivated to correlate the level of mathematics performance with different factors such as learners', home, and school among grade 9 learners in the Secondary Schools' Division of Eastern Samar amidst pandemic in the School Year 2021-2022.

II. CONCEPTUAL FRAMEWORK

The study correlates mathematics performance among grade 9 learners of ten secondary school divisions in the northern part of Eastern Samar during the first quarter of the School Year 2021-2022.

Above-mentioned-predictive variables were hypothesized influentially the criterion variables, which is the mathematics performance among grade 9 learners in secondary schools' division of Eastern Samar from the framework, and implications will be drawn.

Figure 1, schematic diagram of this study. The first box showed the predictive variables grouped into Learners' Factors includes; Grade 8 General Weighted Average in Mathematics, Learners' attitude towards Mathematics, and Learners' Mathematics Anxiety. Home Factor includes; Parents' educational attainment, Parents' occupation, and Available learning materials at home. School Factor includes; Available learning materials at school, Distance of residence to the school, and Monitoring learners' progress. All these three groups of variables were correlated to the criterion variable in the second box, which is the Mathematics Performance of Grade 9 learners in Secondary Schools, Division of Eastern Samar amidst the pandemic.
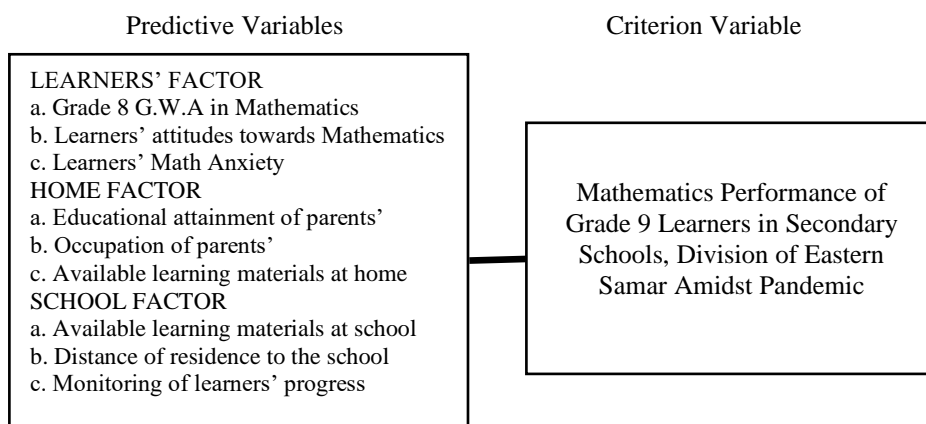
Predictive Variables   Criterion Variable

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LEARNERS' FACTOR
a. Grade 8 G.W.A in Mathematics
b. Learners' attitudes towards Mathematics
c. Learners' Math Anxiety
HOME FACTOR
a. Educational attainment of parents'
b. Occupation of parents'
c. Available learning materials at home
SCHOOL FACTOR
a. Available learning materials at school
b. Distance of residence to the school
c. Monitoring of learners' progress
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Mathematics Performance of Grade 9 Learners in Secondary Schools, Division of Eastern Samar Amidst Pandemic

Figure1. The schematic diagram showing of the relationship of variables used in the study

III. OBJECTIVES

An investigation was undertaken to determine the correlates of mathematics performance of grade 9 learners of the ten secondary schools in the northern part of the school's division of Eastern Samar during the first quarter of the School Year 2021-2022.

Specifically, this study was directed toward the attainment of the following research questions.

1. What is the grade 9 learner-respondents perceived status in terms of; 1.1 Learners' Factor, 1.1.1 Grade 8 G.W.A in Mathematics, 1.1.2 Leaners' attitudes towards Mathematics, 1.1.3 Learners' Math Anxiety? 1.2 Home Factor, 1.2.1 Educational attainment of parents' Occupation of parents', 1.2.3 Available learning materials at home? 1.3 School Factor, 1.3.1 Available learning materials in school, 1.3.2 Distance of residence to the school, 1.3.3 Monitoring of learners' progress?
2. What is the level of mathematics performance of grade 9 learners among secondary schools' division of Eastern Samar in terms of achievement tests?
3. Is there a significant relationship between the mathematics performance of grade 9 learners in secondary schools' division of Eastern Samar, and the following factors; 3.1. Learners' Factor, 3.2. Home Factor, 3.3. School Factor.

IV. METHODOLOGY AND RESEARCH DESIGN

The researcher used the correlational method. This type of research is designed to determine the extent to which different variables are related to each other in the population of interest. Descriptive research involves the description, recording, analysis, and interpretation of the present nature, composition, or process of phenomena concerning problems in educational results, preferences, practices, and procedures (Calderon and Gonzales, 2006). This study utilized descriptive research it described the data of different factors such as learners' factor, home factor, and school factor. Furthermore, a correlational study aims to find out the direction and extent of the relationship between different determinants of the population under study (Calderon and Gonzales, 2006). Hence, this investigation is to determine the relationship between learner factors, home factors, and school factors of Grade 9 learners, and their level of mathematics performance of Grade 9 learners among Secondary Schools, in the Division of Eastern Samar amidst the pandemic.

Locale of the Study

This study was conducted on ten (10) secondary schools division in the northern part of Eastern Samar for the first quarter of the school year 2021-2022.

These secondary schools are Arteche National High School (ANHS), Can-avid National High School (CNHS), Dolores National High School (DNHS), Dapdap National Technical Vocational High School (DNTVHS), Nicasio Alvarez Memorial High School (NAMHS), Hilabaan National High School (HNHS), Hinolaso National High School (HNHS), Maslog National High School (MNHS), Samar National Pilot Opportunity School of Agriculture (SNPOSA) and Oras National High School (ONHS). Moreover, all of these secondary schools are located in the northern portion of Eastern Samar.

Respondents of the Study

The respondents of this study are three hundred (300) grade 9 learners who are officially enrolled in the different secondary schools, division of Eastern Samar as of September 2021 one week after enrolment started of the School Year 2021-2022.

Sampling Procedure

In the selection of sampling procedure, the researcher used Slovin's formula and simple random sampling by using the lottery technique or fishbowl technique in the selection of participants among grade 9 learners who are officially enrolled in the different Secondary Schools, Division of Eastern Samar for School Year 2021-2022.

Research Instruments

The researcher utilized the existing questionnaire with four main parts. The first part is the learners' factor in terms of the general weighted average in mathematics obtained from the report card of the last school year attended. To measure a student's attitude toward mathematics, the researcher adapted from the study of Rivera's (2011) Aiken and Dreger Mathematics Attitude Scale. To measure students' mathematics anxiety the researcher adapted-instrument from the study of Dela Rosa (2014). The second part is a home factor checklist questionnaire on home factors that will describe accordingly to gather data on the home variables. The learners-respondents were asked to supply information on the education of their father and mother, the occupation of their father and mother, and the reading materials that are available at their home. The third part is the school factor a checklist questionnaire on the school factors will describe accordingly to gather data. The learner-respondents to supply information on available learning materials at school, the distance of residence to the school, and monitor students' progress. The last part is to measure the level of Mathematics performance, the researcher used the first quarter summative test consisting of 30 items multiple choices based on the contents of DepEd order no. 21, series of 2019. The scores obtained by the learners' served as mathematics performance levels.

Data Gathering Procedure

The researcher started gathering data by writing letters asking permission from the Schools Division Superintendent of Eastern Samar to allow him to administer the survey questionnaire to the respondents. The researcher secured permission from the IATF Chairman to follow the guidelines of strictly following the minimum health protocols. And then, the researcher personally asks permission from the Principal/School Head of the ten (10) secondary schools in the division of Eastern Samar to identify a sample and eventually distribute three hundred (300) pieces of research survey questionnaires to the identified respondents on September 27, 2021, to October 18, 2021. Moreover, the researcher asked assistance from a class adviser in that particular school to distribute research survey questionnaires by inserting them into their learner's plastic envelopes.

However, the Department of Education in Secondary Schools Division of Eastern Samar is using a modular approach as a mode of learning in new normal education, the data collection will spend three (3) weeks upon the distribution and retrieval of research instruments. The researcher retrieved the research instruments during the scheduled retrieval of modules in the respective schools and retrieved the research instruments with a 100% response rate.

Data analysis

The data were tabulated, organized, analyzed, and interpreted using descriptive tools such as frequency count, percentage, and rank to determine the mathematics performance of grade 9 learners in secondary schools' division of Eastern Samar amidst the pandemic. Furthermore, the correlational statistical tools, namely, Spearman's Rank Correlation, Pearson Product Moment of Correlation, and Point-Biserial Rank Correlation were used to establish relationships and significant differences variables at 0.05 alpha level.

Ethical considerations

This study followed the appropriate research ethics guidelines. The researcher asked permission from the adopted research instrument used in this study. After the action was taken and approved, a consent form from learner-respondents was provided. The researcher started gathering data by writing letters asking permission from the Schools Division Superintendent of Schools Division of Eastern Samar to allow him to administer the survey questionnaire to the respondents. And then, secured permission from the IATF Chairman to follow the guidelines of strictly following the minimum health protocols. The

researcher personally asked permission from the Principal/School Head of ten (10) secondary schools in the Division of Eastern Samar to identify a sample and eventually distribute 300 pieces of research survey questionnaires to the identified respondents. Moreover, the researcher asked for assistance from a class adviser in every school to distribute research survey questionnaires inside learners' plastic envelopes.

However, the Department of Education in secondary schools Division of Eastern Samar is using the modular approach as a mode of learning in new normal education. The researcher retrieved the research survey questionnaire during the scheduled retrieval of modules in the respective school. Thus, the learner-respondents were assured that data will be kept confidential and cannot be used in any legal actions against them.

V. RESULTS AND DISCUSSION

Learners' Factors in the Secondary Schools Division of Eastern Samar: Grade 8 G.W.A. in Mathematics

Table 1 shows the previous grade levels' mathematics performance of grade 9 learners amidst the pandemic. Out of three hundred (300) learner-respondents participated, there are one hundred sixty-one, or 53.7% whose previous grade is 90 – 100 an outstanding level of performance in mathematics, while one hundred thirty-nine, or 46.30% who got 85 – 89 on their previous grade in mathematics with very satisfactory performance. However, the respondents' level of mathematics performance in the previous school year are outstanding performance and mostly garnered an academic excellence award with honors. Furthermore, this finding implies that the grade 9 learner-respondents are academic achievers since the overall performance rating was covered such as quizzes, projects, performance tasks, and written outputs in their previous grade level attended.

Table 1. Respondents' previous grades level mathematics performance

Grading Scale*	Level of Performance	Frequency (N=300)	Percent
90-100	Outstanding	161	53.7
85-89	Very satisfactory	139	46.30

*Based on DepEd Order No. 8, series of 2015

Learners' attitudes towards mathematics

Table 2 shows the attitudes towards the mathematics of grade 9 learners amidst pandemic. Out of three hundred (300) learner-respondents who participated, there are 152 or 50.7 average levels of attitudes towards mathematics with the attitude range of 2.33 – 3.66. While there are 148 or 49.3% low level of attitude with 1.00-2.33 attitude range. However, there are no learner-respondents who got high in the level of attitude in mathematics. The said result was also within the study of Michael (2015), findings came out that the students' high attitude can cause poor performance in mathematics. Developing a low attitude towards mathematics can pave a way for an increase in their performance. The findings imply that the grade 9 learner-respondents of the northern part of secondary schools' division of Eastern Samar have an average level of attitudes towards mathematics. About the findings, the study of Suan (2014) revealed that learners' attitude towards mathematics is one of the factors that could affect mathematics achievement. In addition, Attwood (2006) identified the causes of low performance and high performance in mathematics including attitude toward the subject.

Table 2. Respondents' attitude towards mathematics

Attitude range	Level of attitude	Frequency (N=300)	Percent
1.00-2.33	High		
2.34-3.66	Average	152	50.7
1.00-2.33	Low	148	49.3

Learners' Math Anxiety

Table 3 shows the mathematics anxiety of grade 9 learner-respondents of secondary schools' division of Eastern Samar amidst the pandemic. Data revealed the vast number of grade 9 learner-respondents (N=300) as the perceived level of math anxiety, there are 300, or 100% of the respondents an average level of anxiety under the range of 25-52. Similar to *Lailiyah, et. al. (2020) finding* shows the level of all aspects of students' anxieties in mathematics learning was at a moderate level. Findings imply that all of the grade 9 learner-respondents in the northern part of the secondary schools' division of Eastern Samar are resilient, easily cope up with the new normal education, and have neither a highly positive nor negative outlook towards themselves.

Table 3. Respondents' anxiety level in mathematics

Anxiety range	Level of anxiety	Frequency (N=300)	Percent
53-75	High		
25-52	Average	300	100
1-24	Low		

Home Factor in the Secondary Schools Division of Eastern Samar: Educational Attainment of Parents

The data revealed that the vast number of grade 9 learner-respondents (N=300), most of the parent's educational attainment are high school graduates with one hundred sixteen (116) or 38.7% of the fathers, while there are one hundred nine (109) or 36.3% college graduate who had reached of the mothers. The finding implies that the mothers had higher educational attainment compared to the fathers. Hence, parents' educational attainment can be the motivation of their children to perform better in school because parents can serve as role models to their children.

Table 4. Parents' educational attainment status

Levels of educational attainment	Father		Mother	
	Frequency (N = 300)	Percent	Frequency (N = 300)	Percent
Elementary level	33	11.0	16	5.3
Elementary Graduate				
High School level	34	11.3	13	4.3
High School Graduate	116	38.7	36	12.0
College level	39	13.0	109	36.3
College Graduate	72	24.0	34	11.3
Post Graduate and Higher	6	2.0	79	26.3

Occupation of Parents

Table 5 shows the occupation of parents of grade 9 learner-respondents of secondary schools' division of Eastern Samar amidst pandemic. Data revealed on the vast number of learner-respondents (N=300) with fathers most occupation is highest-earning occupations with two hundred nine ten (219) or 73%. However, mothers' occupations are high earning occupations with two hundred twenty-three (223) or 7. Which generally, the level of parents' occupation of grade 9 learner-respondents are high-income earning occupations. The findings imply that the occupational parents emphasizing the financial income also influence the performance and completion in schooling. Families with high-income earners invest more in the education of their children. Hence, families whose low-income earner is likely preventing a child from attending a school that causes poor performance. However, according to David and Albert (2012), poverty hinders children from attending school since they do not have money to buy school supplies and pay for transportation. Despite free education for all, the high cost of education or financial concern (17.9%) remains one of the top reasons why students drop out of school (Lumili, 2009).

Table 5. Parents' occupational status

Levels of occupations	Fathers		Mothers	
	Frequency (N = 300)	Percent	Frequency (N = 300)	Percent
High earning occupations	219	73.0	223	74.3
Low earning occupations	81	27.0	77	25.7

Available learning materials at home

Table 6 shows the findings on available learning materials at home. Data revealed that the majority of the learner-respondents (N=300) within first in ranked is an android cellphone with the frequency of 255. Generally, the most frequently learning materials available is an android cellphone. Similar to this Limb and Fullarton (2001) found out that more family learning resources and those who have unlimited resources tend to have higher achievements levels in mathematics. In addition to the findings, Valk (2010), presented the use of mobile phones helped to improve educational outcomes in two specific ways: 1) in improving access to education, and 2) in promoting new learning. Analysis of the projects indicates that while there is important evidence of mobile phones facilitating increased access, much less evidence exists as to how mobiles promote new learning. In contrast, the negative point of view the findings of Chukwuere (2018) it was found that using smartphones distracts students from their studies in certain aspects. The results also showed the impact of using smartphones on students' academic capabilities and progression. Findings imply that availability of learning materials at home is easily

provided access from a cellphone, books, and television. However, learners' must be encouraged to read and write learning materials at home, while giving them a learning space for every learner to motivate, focus, and be determined to study their lesson.

Table 6. Availability status of learning materials at home

Learning materials at home	Frequency* (N=300)	Rank
Books and References	228	2
Encyclopedia	34	8
Tabloids	3	18
Novels/Novelette	26	9
Bible	120	5
Comics	18	14
Thesaurus	19	13
LCD Projector	1	19
Atlas	7	16
Newspapers	24	11
Magazines	36	7
Dictionaries	175	4
Bulletin Board/Display	4	17
Journals	26	9
Children Encyclopedia	20	12
Television	195	3
Computer/Laptop	74	6
Android Cellphone	255	1
Booklets/pamphlet	17	15

* = multiple responses

School Factor in the Secondary Schools Division of Eastern Samar: Available learning materials at school

Table 7 shows the findings on available learning materials at school. Data revealed that the majority of the grade 9 learner-respondents (N=300) within first ranked is books and references with the frequency of 259. Generally, the most available learning materials available at school are books and references. Similar to the results of the study of Quimbo (2010) suggested that mathematics achievements can be improved by effectively delivering school materials that can affect the learning outcomes of the learners. Findings imply that the availability of learning materials at school is more on the traditional way of learning materials used such as books and references, dictionaries, display boards, etc. However, some schools enhance and integrate information communication technology (ICT) to their learners by using computers/laptops, LCD projectors, television as part of the new normal education.

Table 7. Availability status of learning materials at school

Learning materials at school	Frequency* (N=300)	Rank
Books and References	259	1
Encyclopedia	106	5
Tabloids	18	19
Novels/Novelette	20	18
Bible	29	16
Comics	25	17
Thesaurus	32	14
LCD Projector	95	6
Atlas	30	15
Newspapers	36	13
Magazines	44	11
Dictionaries	190	2
Bulletin Board/Display	163	4
Journals	70	8
Children Encyclopedia	39	12
Television	60	10
Computer/Laptop	181	3
Android Cellphone	76	7
Booklets/pamphlet	61	9

* = multiple responses

Distance of residence to the school

Table 8 shows the distance of residence to the school of grade 9 learner-respondent of secondary schools' division of Eastern Samar. Data revealed that most of the respondents (N=300) are long distances to the schools with the frequency and percentage of 110 or 36.7% of 4 kilometers and above. While the lowest is 15 or 5% from 3 kilometers to 3.99 kilometers. Similar to the result of Oneye and Onyango (2020), based on the findings school stakeholders perceived the long-distance travelled by students reduces teacher-students contact time, leads to stomach ulcers, headaches, and related issues which reduce school attendance and completion rates. Therefore, hinder effective teaching and learning resulted into low academic performance. Findings imply that the grade 9 learner respondents came from upstream barangays otherwise the location of the school is far from their house and it would be possible to lead to dropouts, poor performance, and not continuing education.

Table 8. Distance of residence to the school of the respondents

Distance of residence to the school	Frequency N=300	Percent
4 km. above	110	36.7
3 km. to 3.99 km.	15	5.0
2 km. to 2.99 km.	21	7.0
1 km. to 1.99 km.	47	15.7
below 0.99 km.	107	35.7

Monitoring Learners Progress

Table 9 shows the monitoring learners progress of grade 9 learners of secondary schools' division of Eastern Samar. Data revealed surprisingly that most of the respondents (N=300) monitor their learning progress are only once per week with the frequency and percentage of 158 or 52.7%. However, the lowest is 14 or 4.7% never monitor in a week. A great impact to the learners in times of pandemic to monitor their knowledge and give them feedback of their outputs. Findings imply there is not enough monitoring of learners' performance and it would lead to poor performance of learners. An important implication to illustrate the role of teachers in addressing the academic needs of learners in the new normal education.

Table 9. Monitoring learners progress of the respondents

Monitor learners progress	Frequency N=300	Percent
monitor 4 times per week	77	25.7
monitor 3 times per week	20	6.7
monitor 2 times per week	31	10.3
monitor only 1 per week	158	52.7
never monitor in a week	14	4.7

Level of mathematics performance of grade 9 learner-respondents for the first quarter of School Year 2021-2022

The first quarter performance test results of three hundred (N=300) participating grade 9 learner-respondents of secondary schools' division of Eastern Samar were categorized by the level of performance based on the contents of DepEd Order no. 21, series of 2019, as shown in Table 11. Data shows that the highest percentage score belongs to 35 – 65 Unsatisfactory performance of 156 or 52% learner-respondents. However, the lowest percentage score belongs to 86 – 95 Very Satisfactory performance with 3 or 1% learner-respondents. It also affects the confinement of students during the pandemic has a significant positive effect on their performance (Gonzales, 2020). However, the result is limited only in describing the overall performance of grade 9 learners in the first quarter achievement amidst pandemic, and it found out that most of the grade 9 learners need to provide special attention in terms of academic performance especially in mathematics subject by learning continuity plan using different modalities in teaching such as online class, instructional videos, home visitation, modular print, open communication to the parents/guardians for them to bridge the gap between learners and teachers in times of pandemic.

Table 10. Respondents performance in mathematics during the first quarter of the school year 2021-2022

Performance interval	Level of performance	Frequency (N =300)	Percent
96 – 100	Outstanding		
86 – 95	Very Satisfactory	3	1.0
66 – 85	Satisfactory	16	5.3
35 – 65	Unsatisfactory	156	52.0
0 – 34	Poor	125	41.7

*Based on DepEd Order No. 21, series of 2019

Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of learner's factors

Table 11 shows the relationship via Pearson r on grade 9 learner-respondents mathematics performance and parameters of learners' factors. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible -.01 to .19, Weak - .20 to .29, Moderate -.30 to .39, Strong -.40 to .69, Very Strong -.70 to 1.0. Findings show that math anxiety (r = -.173, p = .018) and attitude towards mathematics (r = .138, p = .001) constitute negligible and significant effect on the level of mathematics performance of grade 9 learners. However, the parameter of previous grade levels with (r = .727 and p = .001) very strong significant relationship between the mathematics performance of grade 9 learner-respondents. Despite the modular printed approach in teaching utilized of leaner-respondents, there are contingency plans on blended learning approaches such as online class, video instruction, radio-based instruction to improve learners' level of mathematics performance as well as the achievement test.

Table 11. Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of learner's factors.

Parameters of learner factors	Mathematics performance		Decision
	Result	Interpretation	
Previous grade level's mathematics performance attitude towards mathematics	r = .727 p = .001	Very strong Significant	Reject H_0
The anxiety level in mathematics previous grade level's mathematics performance	r = -.173 p = .018	Negligible Significant	Reject H_0
Attitude towards mathematics	r = .138 p = .001	Negligible Significant	Reject H_0

Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of home factors.

Table 12 presents the test on the relationship via Spearman rho and Point-biserial r correlational analysis between the respondents' mathematics performance and parameters of home factors. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible -.01 to .19, Weak - .20 to .29, Moderate - .30 to .39, Strong - .40 to .69, Very Strong - .70 to 1.0. Findings show that parents' occupation result is negligible and interpreted as significant in the relationship between mathematics performance with father's occupation (r_{pb} = .190, p = .001) and mother's occupation (r_{pb} = -.173, p = .003). However, parents' educational attainment result is very weak and interpreted as not significant relationship between the level of mathematics performance with father's educational attainment (rho = -.099, p = .086) and mother's educational attainment (rho = -.057, p = .328), while the available learning materials at home (r_{pb} = -.001, p = .984) the result is very weak and interpreted as not significant relationship between the level of mathematics performance. Generally, the findings imply that parents' educational attainment and available learning materials at home had no significant relationship to grade 9 learners on mathematics performance.

Table 12. Test of *significant relationship between grade 9 learner*-respondents' mathematics performance and parameters of home factors.

Parameters of home factors	Mathematics performance		Decision
	Result	Interpretation	
Father's educational attainment	rho = -.099 p = .086	Very weak Not significant	Fails to reject H_0
Mother's educational attainment	rho = -.057 p = .328	Very weak Not significant	Fails to reject H_0
Father's occupation	r_{pb} = .190 p = .001	Negligible Significant	Reject H_0
Mother's occupation	r_{pb} = -.173 p = .003	Negligible Significant	Reject H_0
Availability status of learning materials at home	r_{pb} = -.001 p = .984	Very weak Not significant	Fails to reject H_0

Test of a significant relationship between grade 9 learner-respondents' mathematics performance and parameters of school factors.

Table 13 presents the test on the relationship via Spearman rho and Point-biserial r correlational analysis between the respondents' mathematics performance and parameters of home factors. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible - .01 to .19, Weak - .20 to .29, Moderate - .30 to .39, Strong - .40 to .69, Very Strong - .70 to 1.0. Findings show that the available learning materials at school (r_{pb} = .072, p = .216) are very weak and not significant (fails to reject H_0). While, monitoring learners' progress (rho = -.096, p = .098) is negligible and not significant (fails to reject H_0). Moreover, a distance of residence to the school (rho = .184, p = .001) is negligible and significant (reject H_0).

Table 13. Test of a *significant relationship between grade 9 learner*-respondents' mathematics performance and parameters of school factors.

Parameters of school factors	Mathematics performance		Decision
	Result	Interpretation	
Availability status of learning materials at school	r_{pb} = .072 p = .216	Very weak Not significant	Fails to reject H_0
Distance of residence to the school of the respondents	rho = .184 p = .001	Negligible Significant	Reject H_0
Monitoring learners progress of the respondents	rho = -.096 p = .098	Negligible Not significant	Fails to reject H_0

Test of a significant relationship between grade 9 learner-respondents' mathematics performance and identified factors affecting it.

Table 14 shows the relationship between grade 9 learner-respondents' mathematics performance and factors affecting mathematics performance. Dancy and Reidy (2004) measures using interpretation of correlation with estimated values; Very Weak - .00 to .05, Negligible - .01 to .19, Weak - .20 to .29, Moderate - .30 to .39, Strong - .40 to .69, Very Strong - .70 to 1.0. Findings show that home and school factors constitute negligible negative and positive effects on the level of mathematics performance of grade 9 learners (rho of -.129 and .047, respectively), even though modular printed approaches in teaching are utilized by school and learners do not fully understand and new to everyone. Hence, there were contingency plans provided by the school such as a blended learning approach (Online, Video, Radio Instruction) for learners to improve the level of mathematics performance as well as the achievement test. While learners' factors resulted as a positive impact on the learners yet interpreted as a strong correlation it means learning begins into oneself capacity to handle improvement of their performance. The learners' and home factors establish a significant relationship to grade 9 learners on mathematics performance, while school factors resulted as the not significant relationship of mathematics performance. Learners must have a good attitude towards mathematics and minimize the level of anxiety through reading educational books and providing learning activities. Home for learning opportunities in which parents and other members of the family are actively engaged to support the learner's education. While, the school must improve learning materials, facilities, and always monitor learning outcomes to provide necessary intervention for those academically challenging learners.

Table 14. Test of a *significant relationship between grade 9 learner*-respondents' mathematics performance and identified factors affecting it.

Predictive Variables	Criterion Variable	rho	Interpretation	p-value	Decision	Interpretation
Learners' Factor		.515	Strong	.000	Reject H_0	Significant
Home Factor	Mathematics performance	-.129	Negligible	.026	Reject H_0	Significant
School Factor		.047	Negligible	.610	Fails to reject H_0	Not Significant

$a = 0.05, df = 2$

VI. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study the following conclusions are drawn.
1. Most of the grade 9 learners in secondary schools' division of Eastern Samar are academic achievers in their previous grade levels, while parents are high school graduates, high-income earners, longer distance from their residence to the school with four kilometers and above, and most of the teachers monitor learners progress only once per week. However, android cellphone, books, and references are the most available learning materials at home and school. The learner-respondents have an average level of attitude toward mathematics and an average level of anxiety about mathematics.
2. Most of the Grade 9 learners in the secondary schools' division of Eastern Samar performed an unsatisfactory level of performance in mathematics.
3. There is no significant relationship between grade 9 learner-respondents' mathematics performance and parameters of

school factors. Parents are actively engaged to support learners' education and school must improve learning materials, and facilities. Always monitor learning outcomes provided with necessary intervention for those academically challenged learners.

From salient findings and conclusions, the following recommendation is advanced.

1. The grade 9 learners must provide adequate learning materials at home to sustain their education. Parents should be financially stable and educated to support their children as far as education is concerned.

2. It must be recommended the school in the community must be provided with learning materials available at school which are closer to where learners live to avoid long distances travelled by learners in times of pandemic. The teacher should strive to keep monitoring learners' progress and give necessary interventions such as home visitation, blended learning, and learning activity sheets that can increase the performance of mathematics.

3. Future researchers must undergo making their survey questionnaires without the adaptation of other researchers.

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