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LEARNING STYLES AND PRELIMINARY PERFORMANCES OF JUNIOR HIGH SCHOOL STUDENTS IN MATHEMATICS UNDER THE NEW NORMAL

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Abstract

The main objective of this study was to determine the learning styles and the performances of the Junior High School students in Mathematics from Cebu Province Division under the New Normal during the first quarter of the S.Y. 2020 – 2021 as the basis for Adaptive Learning Engagement Plans. This study employed a quantitative and qualitative research design which utilized a descriptive method using the response of the respondents in a self-made survey questionnaire and an adapted learning preference questionnaire as well as the scores obtained by the respondents from the exam in their Mathematics' modules. The respondents were the junior high school students in each school through simple random sampling in each grade level. The findings of the study showed that the respondents had an age range appropriate for each grade level. The respondents have moderately good performance in mathematics in the previous school year (2019- 2020). As to learning style, forty-eight percent of the respondents were categorized as visual and the rest were auditory and haptic. Most of the respondents' scores are average.

Results showed that there is a significant correlation between the respondents' gender, previous grade in mathematics, frequency of studying the lesson, and their learning preference which means they need to be given more attention and design more activities that suits their preference in learning under the new normal. It is hereby recommended that the adaptive learning engagement plans be implemented.

Keywords: Teaching Mathematics, Learning Style, Mathematics Performance, Mixed Research Method.

1. Introduction

Mathematics is considered by many students as a difficult academic subject. Diverse learning strategies and innovative techniques and methods were implemented by teachers to improve the academic performance of the learners abandoning the conventional method. Academic performance in any subject area is a vital aspect to be considered in the field of Education. One of the subject areas that needs to be considered is in the Field of Mathematics where students always find it tough and the subject that they hate the most. Some factors, such as aptitude, instruction, and social and psychological environmental factors, affected students' perceptions of math (Mazana et al., 2019). Students' performance in this subject area has been constantly monitored even in different countries.

Education, in a broad sense, is any activity that has a significant effect on developing the cognitive, skills, and attitude of any individual. It is composed of various disciplines, which should be taught and learned by every human. Mathematics is one of the most established disciplines, it is considered to be the toughest subject and is part of every curriculum around the world. The student's academic performance, specifically in Mathematics must be given full consideration and attention since it is regarded as a main subject that has great contributions to everyone's future and in the country's economy. Mathematics is one of the subject areas with very low results among all the tool subjects. In fact, during the exam conducted by the Program for International Student Assessment (PISA), Mathematics failed to attain a predicted level of achievement. This is not just a problem in a few countries but a concern in every nation.

Moreover, the result of the exam in the said subject area is not quite impressive here in the Philippines. Last 2003, the country ranked 34th out of 38 participating countries during the exam conducted by the Trends in International Mathematics and Science Study (TIMSS). Moreover, the country ranked 79th out of 138 participating countries last 2016 – 2017 data with regards to the quality of Math Education according to the Global Competitiveness Report of the World Economic Forum. The study of Guinocor et al.(2020), reveals that teaching and understanding mathematics is a top priority in every educational system.

A student's academic performance has been variously defined as a level of proficiency attained in academic work. It is a formally acquired knowledge in school subjects. The marks obtained by students in examinations are often represented by a percentage. Student performance is a dynamic phenomenon that is affected by different factors such effect of each of these factors varies from student to student and context to context. The advances in both pure and applied mathematics, as well as technological development—particularly the effects of computer applications and portable electronics—all contributed to the expansion of mathematics as a science. These societal influences have altered the function of school mathematics, and to empower students and better prepare them for the world of the future, mathematical concepts, skills, and teaching methodologies must be upgraded to favor the students (Posamentier & Smith, 2020).

The research on measuring the impact of various factors on student performance is challenging to generalize. The Department of Education conducted an exam which is the National Achievement Test (NAT). NAT is used to determine the student's achievement that

measures their performance in the different five subject areas and one of these is Mathematics, which is the concentration of this study. Students' achievement in Mathematics can be identified by getting the Mean Percentage Score (MPS). It turned out that the result was below the target performance of the students.

As the country faces the pandemic this year, students' performance may be again challenged. National data from DepEd showed that the total number of enrollees for S.Y. 2020-2021 has only reached 84.8% of S.Y. 2019-2020 total enrollment. To ensure learning continuity, DepEd developed the Learning Continuity Plan (LCP) wherein alternative learning delivery modes will be used. In addition to online learning, students' self-learning modules, TVs, and radio will also be used in learning when classes start. Students perceived that the different modalities are more adaptable to their needs.

1.1. Conceptual framework

Mathematics is considered by many students as a difficult academic subject. To improve their performance, various learning strategies are employed by teachers abandoning the conventional method (Gamit et al., 2017). Teachers struggle as they look for new interventions to suit the student's needs. Cooperative learning for instance was used in a certain study to enhance the level of performance of grade 10 mathematics students in the Philippines. The study shows that the method positively improved the performance in mathematics of the control and experimental groups while effectiveness assessment showed a highly effective result, and the application of the method showed a positive impact on the participants as shown by their positive perception of the subject mathematics.

In any educational system, teaching and understanding mathematics were one of the most significant concerns. Various researchers made large efforts to find out the causes of students' performance in the subject. They still endured despite every one of these endeavors' issues (Guinocor et al., 2020). The study orientation of students would differ, and one could agree. In terms of learning preferences, various research in brain-based research and neuroscience had been a topic in brain dominance. Some researchers found out that the use of one side of their brain over the other was typically favored by the people. Discussions about brain hemispheres reveal the fact that there arHe differences between individual learning styles. Furthermore, the study of Belecina & Ocampo Jr (2019) reveals results or findings of brain studies, researchers had developed different models, approaches, and inventories.

Teachers even have varied brain dominance. They need to determine the brain dominance of the learners to address individuals' learning styles. Learning styles and brain dominance were found to be significant factors associated with mathematics performance. Moreover, learning styles and brain dominance are also significantly associated (Nancekivell et al., 2020).

Moreover, students' attitude toward the subject of Mathematics has a significant correlation. Students who engage in mathematical problems will make them enhance their critical thinking skills and they assume that they have more chance of becoming successful in life if they are good in Mathematics. However, students would still consider Mathematics as the most difficult subject. There is a tendency that students would give up easily if they cannot solve the problems and considers the subject as a scary subject. Thus, the students exhibit a negative attitude toward Mathematics, and it has a negative implication for their academic performance in the said subject area (Subia et al., 2018).

Dumas et al. (2020) assessed the specific mathematical competencies of a little over three thousand elementary school teachers in the country and found out that although the respondents were supposed to be elementary Mathematics teachers, 40% of them would not have chosen to teach Mathematics had the choice has been theirs. Considering such attitudes imparted by the teachers to their students, probably this is the basis of other studies of why students at the higher level perceive Mathematics as a subject to be sidestepped. The study of Belbase (2019) reveals that teaching methods, the support of the structure of the school, the family, and students' attitudes toward school can affect

the learners' attitudes toward mathematics. Usually, the way that mathematics is presented in the classroom and perceived by students, even when teachers believed that they were presented in an authentic and context-dependent way still stood to alienate many students from mathematics.

As attested by (Kim et al., 2020), Mathematics is not about an answer to a particular problem but rather a process and skills in determining the answer. He elaborated that it is like building a scaffold in teaching Mathematics and how students learn in the subject. Without even constructing the building, the scaffolding is intended to support and strengthen the foundation. As further stated, true mathematical understanding, and the true ability to think, perceive and analyze mathematically are the real building and foundation of mathematics knowledge. Yet, a lot of students believed that learning and engaging in Mathematics is an arduous task to accomplish, not even realizing its significance and usefulness.

Given the goals of education, the new normal post-COVID-19 era opens an opportunity to explore various methods in the educational system. The development of preparedness in times of disasters, diseases, and emergencies is one of the goals to make the curriculum relevant, appropriate, and responsive (Cahapay, 2020). As cited in the study, preparing for the post-COVID-19 era characterized by a "new normal" has likewise been considered in the educational systems. This expression first emerged in the field of business.

In addition, some professionals were made and did several studies as to what would be best for the students in the so-called "New Normal". As cited by Tria (2020), most countries around the world have temporarily closed educational institutions for almost five pandemic months to contain the spread of the COVID-19 pandemic and reduce infections. This closure has affected more than 28 million learners in the Philippines and more than 1.2 billion learners worldwide. Safety measures' responses like community lockdowns and community quarantines have led students and teachers in several countries to study and work from home, which led to the delivery of online learning platforms (Crawford et al., 2020). However, different risks, problems, and challenges to both teachers and students have occurred during the implementation of online learning especially in higher education institutions (HEIs) (Bao, 2020).

Blended learning combined with synchronous and asynchronous types of teaching were suggested to be beneficial. The synchronous teaching proceeds in real time. All participants accept the presented experience simultaneously. They can react mutually. Asynchronous teaching is facilitated and usually applied at different times to different students in which they can choose the pace and the way of accepting experience (Ahmed, 2021). In the study of Cortez (2020), teachers must make a lot of adjustments, not only in their preparation of teaching materials but likewise, with the effectiveness of their delivery having a different platform with the expected shift of educational delivery. Moreover, participation and acceptance rate from the learners should be less of a worry than how the school will develop an environment to ensure better learning for the students; with the convergence of technology comes the pedagogical challenges associated with e-learning implementation (Garcia, 2017).

1.2. Purpose of the study

This study determined the learning style and preliminary performance of the junior high school students in Mathematics from the National High School of Cebu Province Division under the New Normal during the first quarter period of the school year 2020 – 2021. Specifically, it sought the answer to the following question.

1. What is the profile of the respondents in terms of age and gender, final grade in Mathematics in the previous year; and frequency of studying the lessons
2. What are the performances of the respondents in Mathematics during the first quarter?
3. What are the learning styles of the respondents as to; visual, auditory; and haptic?
4. Is there a significant correlation between the profile of the respondents and the performances

of the respondents in Mathematics; and their learning styles?

2. Materials and Methods

The research design, respondents, instrument, data gathering procedure, and statistical treatment are all covered in this section.

2.1 Research design

This study employed quantitative and qualitative research designs which shall utilize a descriptive method. The latter was explained using correlation using the gathered during the conduct of the study. This was aimed to determine the profile of the respondents in terms of age and gender, previous grade in Mathematics, as well as their learning styles, and their preliminary performance in Mathematics under the new normal. Likewise, it also resolute whether a significant correlation existed between the respondents' profile and their learning styles and preliminary performance in mathematics. In determining the preliminary performance of the respondents, the results of their assessment were taken into consideration. The data was organized, tallied, summarized, interpreted, and analyzed based on the results.

A survey questionnaire was used to gather the desired data for this study. The questionnaire consisted of questions that elicit the profile of the respondents in terms of their age and gender, grades in Mathematics in the previous school year, and frequency of studying the lesson. These variables were tested to determine their relationship significantly.

2.2 Respondents

The respondents were the Junior High School Grade – 7 to Grade 10 students of three National High Schools, in the Provence of Cebu Philippines. The respondents of this study focused on the problematic students in their respective grade levels to determine whether they can cope with the kind of learning modality in this pandemic era. The identification of the respondents was purposive. Each school chose only one section in each grade level. All students in a certain grade level were encouraged to participate and answer the questionnaires given to them.

Four hundred and six (406) students participated in this study as respondents. Three different schools sent a combined total of one hundred ten (110) Grade 7 students, ninety-three (93) Grade 8 students, one hundred three (103) Grade 9 students, and one hundred (100) Grade 10 students.

2.3 Instrument

This study used a questionnaire to gather demographic details of the respondents such as age, gender, frequency of studying the lesson in Math, and the final grades in Math at the previous year level. Likewise, the modality (learning channel preference) questionnaire reproduced by O'Brien(1994) was adopted. This questionnaire introduced three learning channel preferences: Visual, Auditory, and Haptic with corresponding statements. Respondents were asked to rank each statement according to how it applies to them, 3 if often applies, 2 if sometimes applies, and 1 if never or rarely applies. Scores were added and the area with the highest scores indicates the preferred learning style. This questionnaire was designed to develop awareness to students about their learning style wherein it is used as a bridge in giving students some practical suggestions. Other instrument was also used to assess the preliminary performance of the respondents such as Post- test in the Self Learning Modules distributed by teachers. These SLMs had alternative learning delivery modalities (modular, television-based, radio-based instruction, blended, and online). These modules were individualized wherein students can go through the material at their own pace and at their own time within a specific week. Modular Learning was adopted in all schools included in this study.

2.4 Data Gathering Procedure

The researchers sent a letter to their respective School Principal to ask permission to conduct the study. After having been granted permission to conduct the study, the researchers identified the different respondents of the different year levels of their respective schools and prepared the different materials needed for the conduct of the study. Printed material with a brief orientation, the purpose of the study, an informed consent form, and important instructions were attached to the Self Learning Modules distributed by teachers on the first week of classes for S.Y. 2020 – 2021. Questionnaires for the profile of the respondents and their preferred learning styles were also distributed to the respondents. Respondents were given ample time to answer the said questionnaire. The test of the Self Learning Module in Mathematics for Grades 7, Grade 8, Grade 9, and Grade 10 also served as a tool for this study. Self-Learning Modules were distributed every Monday and answers were retrieved every Friday. Scores on the test of the identified respondents for the First to Fifth week were gathered. Also, responses from the retrieved questionnaires were tallied and tabulated.

2.5 Statistical Treatment

To shed light on the data obtained, the researcher used descriptive and inferential methods in statistics. To facilitate statistical calculations, appropriate software such as MS Excel and Minitab were used. All statistical computations and analyses were performed with the assistance of a statistician. Frequency count. This tool is used to determine the number of times that the same variable is evident or is present in every respondent's profile. Percentage. This tool is used to show the proportion of a certain variable to be present in certain respondents from the total number of respondents. Weighted Mean. This tool is utilized to determine and interpret the students' preliminary performance in mathematics. Chi-Square Test. This test is used to see whether distributions of students' profiles and their preliminary performance towards Mathematics differ from each other. Pearson r. This test was utilized to determine the strength of the relationship between the student's profile and their preliminary performance in Mathematics.

3. Results

This section presents the gathered data regarding the learning styles and preliminary performances of junior high school students in mathematics under the new normal.

Table 1 Average Age and Gender of the Junior High School Students in Three Schools

Age	Frequency (F)	Percentage (%)	Gender	Frequency (F)	Percentage (%)
11-12	25	19			
13-14	59	44	Male	67	49.62
15-16	43	31			
17-18	7	5			
19 and older	1	1	Female	68	50.37

Total	135	100	Total	135	100

Table 1 shows that the highest frequency is fifty – nine (59) or 44% of the students' aged is in 13 to 14 while one (1) or 1% of the students are in the range of 19 and older. While for the gender category, there are sixty - seven (67), or 49.62%of the students are male, and sixty – eighty (68) or 55.37% are female students with a total of one hundred thirty-five students as the average respondents of this study.

Table 2 Mean of the Grades in Mathematics of the Previous Year

Mean of the Final Grades														
Grade Level	below 74		75-79		80-84		85-89		90-94		95 above		Total	
	f	%	f	%	f	%	F	%	f	%	f	%	f	%
7	0	0	4	13	24	60	8	23	1	3	0	1	37	100
8	0	0	10	28	15	51	5	19	0	0	0	2	31	100
9	0	0	12	36	13	36	7	22	1	6	0	0	34	100
10	0	0	6	19	14	42	12	34	2	5	0	0	33	100

Table 2 shows that the students in Grade 7 with a final grade of 80 – 84; have the highest frequency of twenty-four (24) or 60 %. For the final grade of 90 – 94; with a frequency of one or 3 %. For the students in Grade 8 a final grade of 80 – 84; has the highest frequency of fifteen (15) or 51%. The lowest frequency for Grade 8 students is final grade 85 – 89; with a frequency of five (5) or 19 %. For the students in Grade 9, the highest frequency is the final grade of 80 – 84; thirteen (13) or 36%. And one (1) or 6% of the students got a final grade of 90 -94. While fourteen (14) has the highest frequency or 42% of the students in Grade 10 got a final grade of 80 – 84. While two (2) or 5% of the students in Grade 10 got a final grade of 90 – 100.

Table 3 Mean Frequency of Studying the Lessons

Frequency of Studying the Lessons												
Grade Level	**30minutes**		**30-1 hour**		**1-1.5**		**1.5-2**		**more than 2 hrs**		**Total**	
	F	%	f	%	F	%	f	%	f	%	f	%
7	0	0	4	13	3	10	20	49	10	28	37	100
8	4	12	6	17	6	16	9	33	6	22	31	100
9	1	6	8	18	7	20	10	33	7	24	34	100

10	0	0	6	19	11	31	10	30	6	19	33	100

Table 3 shows the mean frequency of the three schools in studying their lesson for Grade 7 shows that the highest frequency is 20 or 49 % for students who studied Mathematics within one and a half hours to two (2) hours a day. While there are only 4 or 13% of the students in Grade 7 studied Mathematics within thirty (30) minutes to one (1) hour a day. For Grade 8 the highest frequency is 9 or 33% for students who studied Mathematics within one and a half hour to two (2) hours a day. A frequency of 4 or 12 % which is the lowest for students in Grade 8 who studied Mathematics within thirty (30) minutes a day. For Grade 9 the highest frequency is 10 or 33% for students who studied Mathematics within one and a half hour to two (2) hours a day. Grade 9 has the lowest frequency of 1 or 6% for students who studied 30 minutes a day. Lastly, for Grade 10 the highest frequency is 10 or 30% for students who studied Mathematics within one and a half hour to two (2) hours a day. While both 30 minutes to one hour and more than 2hrs have a frequency of 6 or 19%.

Table 4 Average Preliminary Performances of the Respondents in Mathematics during the First Quarter

Average Mathematics Performance								
Grade Level	**0 to 5**		**6 to 10**		**11 to 15**		**Total**	
	f	%	f	%	f	%	F	%
7	0	0	10	26.34	27	73.57	37	100
8	1	4.3	9	27.96	21	67.74	31	100
9	2	4.86	3	8.75	30	86.49	34	100
10	0	0	5	14.01	29	86.09	33	100

Table 4 shows the mean of the average preliminary scores particularly in the post-test of the three schools. It displays that the Grade 7 students who got the scores between 6 to 10 has a frequency of ten (10) or 26.348%; twenty – seven (27) or 73.57% of the students in Grade 7 whose average post test score is eleven (11) to fifteen (15); one (1) or 4.3% of the students in Grade 8 whose average post test score is zero (0) to five (5);nine (9) or 27.96% of the students in Grade 8 whose average post test score is six (6) to ten (10); twenty - one (21) or 67.74% of the students in Grade 8 whose average post test score is eleven (11) to fifteen (15); two (2) or 4.86% of the students in Grade 9 whose average post test score is zero (0) to five (5); three (3) or 8.75% of the students in Grade 9 whose average post test score is six (6) to ten (10); thirty (30) or 86.49% of the students in Grade 9 whose average post test score is eleven (11) to fifteen (15); five (5) or 14.01% of the students in Grade 9 whose average post test score is six (6) to ten (10); twenty- nine (29) or 86.09% of the students in Grade 10 whose average post test score is eleven (11) to fifteen (15).

Table 5 Mean of the Learning Styles of the Respondents

Grade Level	Learning Style: Visual		Auditory		Haptic Kinesthetic		/Total	
	f	%	F	%	f	%	f	%
7	20	58	10	24	7	18	37	100
8	15	49	11	36	5	15	31	100
9	16	44	11	33	7	22	34	100
10	15	45	11	32	8	23	33	100

Visual

Table 5 shows that there are twenty (20) or 58% of the students in Grade 7 whose learning style is visual; fifteen (15) or 49% of the students in Grade 8; sixteen (16) or 44% of the students in Grade 9; fifteen (15) or 45% of the students in Grade 10.

Auditory

Table 5 shows that there are ten (10) or 24% of the students in Grade 7 whose learning style is auditory; eleven (11) or 36% of the students in Grade 8; eleven (11) or 33% of the students in Grade 9; eleven (11) or 32% of the students in Grade 10.

Haptics or Kinesthetic

Table 5 shows that there are seven (7) or 18% of the students in Grade 7 whose learning style is haptic; five (5) or 15% of the students in Grade 8; seven

(7) or 22% of the students in Grade 9; eight (8) or 23% of the students in Grade 10.

Table 6 Correlation Between the Profile of the Respondents and Mathematics Performance

Profile of the Respondents & Math Performance	Statistical Treatment	Correlation Value	P – Value	Decision
Age & Preliminary Performance	Pearson r	r = 0.075	p = 0.129	Accept H_0
Grades in Prev. Year & Preliminary Performance	Pearson r	r = -0.094	p = 0.059	Accept H_0
Gender & Preliminary Performance	Chi - Square	94.7	DF = 89	Accept H_0

Frequency in Studying the Lessons & Preliminary Performance	Chi - Square	434.818	DF = 445	Accept H_0

Table 6 presents the significant correlation between the profile of the respondents and the preliminary performances in Mathematics. Using Microsoft Excel and Minitab, the data were computed. Pearson – r correlation andChi–Square Test was utilized to determine the significance of the variables.

Table 7 Significant Correlation Between the Profile of the Respondents and Learning Styles

Profile of the Respondents & Learning Styles	Statistical Treatment	Correlation Value	P – Value / DF	Decision
Age & Learning Preference	Chi - Square	22.563	DF = 16	Accept H_0
Grades in Prev. Year & Learning Styles	Chi - Square	83.7	DF = 38	Reject H_0
Gender & Learning Styles	Chi - Square	10.283	DF = 2	Reject H_0
Frequency in Studying the Lessons & Learning Styles	Chi - Square	27.809	DF = 10	Reject H_0

Table 7 presents the significant correlation between the profile of the respondents and their learning styles in Mathematics. Using Microsoft Excel and Minitab, the Chi-square test was used to find the significant relationship between the paired variables

4. Discussion

The research participants are mostly 13 to 14 years old with a frequency of 59 or a percentage of 44. This proves that the majority of respondents are at the appropriate age for junior high school, a slight difference with the gender of the respondents, a frequency of 67 or 49.62 percent for the male while 68 or 50.37 for the female. The study of (Ghasemi & Burley, 2019), that despite the difference in gender boys and girls are similar in math performance.

For the grades of the respondents in mathematics of the previous year base on the findings, no student failed in Mathematics during the last school year. It also shows that most students in grades 7 to 10 in the previous school year have a moderately good performance in mathematics or a descriptive rating as Satisfactory. This shows that most of the respondents are performing beyond Satisfactory. It was also revealed in the study of (Schult et al., 2022) that in mathematics, students appear to have a learning backlog that should be addressed in future education. According to the findings of (Cao et al., 2021), teachers believe that the effectiveness of online teaching is largely dependent on student self-discipline.

In terms of frequency of study, the respondents prefer to study mathematics for one and a half to two hours per day. As a result, the respondents devote little time to studying mathematics. However, they can help in forming study habits towards mathematics. According to the research of Suárez-Pellicioni et al. (2021), parents and educators can improve students' math performance by instilling a positive attitude toward the subject. Early support from parents and teachers for students in studying mathematics is essential to maximize their potential and encourage them to have careers in mathematics education and related fields(Falco, 2020).

With regards to the average preliminary performance of the respondents in mathematics during the first quarter, the distribution of their scores shows that scores between 11 to 15 have the highest frequency from grades 7-10, it implies that they understood the topic given in the module. Even in answering modules, prior subject knowledge is more effective when combined with a desire to learn mathematics (Stojanović et al., 2021). The study of Insorio & Macandog (2022), reveals that video lessons to module-based lessons can aid students in understanding mathematical concepts, it one of the reasons that student gets high scores in answering the module. Furthermore, it is supported by the study of Insorio and Olivarez(2021), which shows interventions made via Facebook and Messenger groups help students overcome the challenges of modular distance learning. Based on the calculated effect size, the teacher's interventions effectively assisted students in learning mathematics skills while at home.

The learning style of the respondent's majority are visual learners based on the gathered data, this implies that these respondents learn best from visual images that do not include writing. These are the students who used the augmented reality mode that outperformed those who used the simulation mode in terms of accomplishments and visual thinking (Aldalalah et al., 2019). Followed by auditory learning style, these respondents do better with hearing the discussion of the math professional. Lastly, few respondents are Haptics or Kinesthetic these respondents learn more by doing. Moreover, the study of (Putri et al., 2019) shows that mathematics learning outcomes for students who prefer visual learning are comparable to those for students who prefer auditory learning. While students with auditory learning styles perform similarly to students with kinesthetic learning styles in mathematics, students with visual learning styles outperform students with kinesthetic learning styles.

The significant correlation between the profile and the preliminary performances of the students particularly on age and preliminary performance using Pearson r, the computed r is equal to 0.075, and the p–value is equal to 0. 129 which gives the decision to accept H0. Since the value of r falls between 0 to 0.3 which suggests a weak correlation and the p-value is greater than 0.05, then the result suggests accepting the null hypothesis. With regards to the grades in previous years and their preliminary performance, the computed r is equal to -0.094 and the p – value is equal to 0. 0.059 which it gives the decision to accept H0. Since the value of r falls between 0 to -0.3 which suggests a weak correlation and the p- value is greater than 0.05, then the result suggests accepting the null hypothesis.

Moreover, the gender and preliminary performance using chi-square generates the result of p – value which is 94.7 and the DF of 89 in which the decision is to accept the null hypothesis. Since the computed value is 94.7 with a DF of 89 and the table value is 113. 145 which implies that the computed value is less than the table value. In this situation, this gives a result of accepting the null hypothesis. In addition, the frequency of studying the lesson and the preliminary performance has a computed value of 434.818 with a DF of 445 giving a result of accepting the null hypothesis.

In totality, the results of each category between the profile and the preliminary performance suggest that there is no significant correlation between the two variables since the decision is to accept the null hypothesis. This was supported by the study of (Mazana et al., 2019), which reveals students exhibit adverse attitudes towards Mathematics.

The significant correlation between the profile and the learning styles of the students particularly in the category of age and learning styles using Chi–square test, the result of C – value which is 22.563, and the DF of 16 in which the decision is to accept the null hypothesis. Since the computed value is 22.563 with a DF of 16 and the table value is 26.296 it implies that the computed value is less than the table value. In this situation, this gives a result of accepting the null hypothesis. With regards to the grades in the previous year & learning styles of the students, the computed value of the Chi–square is 83.7 with a DF of 38 and the table value is 55.758 which implies that the computed value is greater than the table value. In this situation, this gives a result of rejecting the null hypothesis. In the gender & learning styles of the students, the computed value of the Chi – square is 10.283 with the DF of 2 and the table value is 5.991 which implies that the computed value is greater than the table value. In this situation, this gives a result of rejecting the null hypothesis. Lastly, the frequency in studying the lessons & learning styles of the students, the computed value of the Chi – square is 27.809 with the DF of 10 and the table value is 18.307 which implies that the computed value is greater than the table value. In this situation, this gives a result of accepting the rejecting the null hypothesis.

In totality, the table shows only the age, and the learning styles accepted the null hypothesis and the rest of the category such as, the grades in previous year & learning styles, gender & learning styles and the frequency in studying the lessons & learning styles of the students rejected the null hypothesis which means that there is a significant correlation of the said categories. The result of this study showed that different models, approaches, and inventories were useful in determining the learning style of the students(Celik & Ozdemir, 2020).

In general, some of the respondents have difficulty answering Math problems. They are not used to answer the problem on their own. They need somebody to explain the given problem. They need scaffoldings to improve and enhance their performance in Mathematics. They cannot easily comprehend the given problem, since others need to visualize, expand what is in the context and manipulate the given problem.

5. Conclusion and Recommendation

Based on the findings, it is concluded that the learning styles and the preliminary performances of the students in Mathematics did not affect each other. Furthermore, the results of the study about their math performance are good since the Modules have the answer key. Students can compare their answers concerning the answer key and be able to verify and correct their mistakes if they got them wrong. Moreover, in this study, students were visual since they preferred to have modules because they can visualize the content of the modules. It is fair to conclude that there is no statistically meaningful association between these variables of the 181 respondents in this sample. After the result was found and then findings were analyzed, the following recommendations were made. Teachers should consider the learning styles of the students and must not employ the one size fits all; this study should also get the significant correlations between the preliminary performance of the students and their learning styles. The adaptive learning plan must be adopted to improve the learning performance of the students.

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