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STRUCTURING DETERMINANTS TO LEVEL UP STUDENTS PERFORMANCE

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ABSTRACT

It has always been a challenge to improve student learning outcomes. Stakeholders in higher education institutions need to go beyond traditional methods and develop new practices to elevate student's performance in mathematics. This research assessed the influencers of student Mathematics performance and also determined the issues and concerns encountered by the students in learning Mathematics. The descriptive-correlational method was employed using a survey questionnaire. There were 370 respondents in the sample and it was selected using simple random sampling from the population of the students at Cebu Technological University North Cell Campus. The data were statistically analyzed through percentage, frequency counts, weighted mean, ranking and Chi – square test for significant difference. The results revealed that home/family, school environment, classmates/peers, community, media and emerging technology were not significantly affecting the performance of the students in Mathematics. However, attending Mathematics classes as a perquisite of their courses was the main problem encountered by the respondents of this study. Based on these data analysis, the researchers proposed human and material resource development plan for enhancing students' performance in Mathematics. Moreover, the researchers recommend future research to dig deeper into the factors inside and outside school premises to identify influencers that influence students' academic performance especially in Mathematics.

Contribution/Originality: This study is a pioneering attempt to identify factors that act as determinants to elevate academic performance specifically in the mathematics subject. It presents the challenges faced by stakeholders in bringing changes in students' academic performance of mathematics. The influencers used in this research have been used for the time in any research study.

1. INTRODUCTION

Education is an important prerequisite to human development in the modern knowledge millennium. Previous studies have shown how education promoted human development and was seen by many to be in the center of any society's life and concern (MolokoMphale & Mhlauli, 2014). Similarly, Al-Shuabi (2014) noted that education is an important issues in anyone's life. It is the key to success of students' careers as it offers many opportunities for students to plan for work or pursue a higher education while graduating from a university. Prior research

conducted by Yusuf (2012) asserted that success of any educational institution is measured by the performance of its students. Bell (2013) stated that academic performance as a symbol of school success can be traced way back from the Victorian period. Since then, academic performance has been used to grade schools and most importantly to determine one's career path. Zephyrhawke (2011) noted that an increasing number of students entering college lack the academic skills necessary to perform well at the college level, forcing professors and academic institutions to lower assessment standards

Moreover, several educational researchers (Bennett, 1978; Carroll, 1963; Glaser, 1976; Walberg, 1981) have proposed theoretical models to explain linkages between learning variables and student's educational outcomes. Specifically, each theoretical model includes characteristics of the learner, the learning environment, and the quality of instruction the learner receives (Haertel, Walberg, & Weinstein, 1983). Wang, Haertel, and Walberg (1993) reviewed empirical literature on the correlation and prediction of academic achievement, and indicated that learners' characteristics exhibit the most significant direct influence on their achievement. Walberg (1981) theory of educational productivity has empirically been tested as one of very few theories of academic achievement. Walberg's theory of academic achievement posits that psychological characteristics of individual students and their immediate psychological environments influence educational outcomes (cognitive, behavioral, and attitudinal) (Reynolds & Walberg, 1992)

While Science and Technology are essential for national development, Mathematics is fundamental in understanding these disciplines. Mathematics also plays a vital role in the modernization of this civilization. Although it is abstract and theoretical in nature, it emerges from the real world. Academically, mathematics is one of the essential and basic areas of the college curriculum, with a universal field of subject matter. It is the study of numbers and their relationship and various operations performed on them. It is also a determinant of quantity, size and shape; to communicate and analyze ideas, a tool for organizing and interpreting data and above all, a method of logical reasoning unique to mankind.

Mathematics is thus an integral part of other sciences and makes them more practical. In the words of Physicist, Richard Feynan" "Nature talks to us in the language of mathematics", that is, numbers, mathematical rules and equations help us to make sense of the world around us. Science and Technology cannot stand without mathematics. Thus, mathematics should be utilized correctly in the realization of national benefits for science and technology and the people in general. It is an accepted fact that mathematics is the queen of all sciences. As noted by Eric Bell, a Scottish American mathematician, mathematics is the "queen and servant of the sciences". By understanding the effects of the family, school and community influencers on the academic achievement of students in mathematics, schools and parents can devise a plan of action which would best help these students improve their academic performance.

This research is an attempt to know whether the level of influence offered by factors such as family, school and community have a significant bearing on the performance of mathematics of students. A number of questions have been raised in previous studies; however, there is a dearth of studies on such factors that contribute to students' performance in mathematics namely: gender, parent's socio-economic status, access to multimedia technology, teachers' personal and professional qualities and community influencer. This study has made an empirical inquiry into these variables to determine their level of influence that they can potentially make on the academic performance in the mathematics subject of learners and the issues and concerns involved in this process.

2. LITERATURE REVIEW

Academic performance is important for the successful development of young people in society. Students who do well in school find it easier to make the transition into adulthood and to achieve occupational and economic success. The importance of students' performance is reflected in the society they will be living in. Moreover, students are pioneers of every nation who must be facilitated with proper education. The environment which develops their

personal characteristics plays a significant role in their academic success. Hence, such factors as age and gender, parent's socio-economic status, access to multimedia technology, teachers' personal and professional qualities and community influencer should be taken into considerations to measure the level of their influence on students' academic performance specifically in mathematics.

2.1. Age and Gender

Several methods are reported in the literature to address the issue of age and gender in relation to students' academic performance. Despite this, there is still a debate among professionals about the impact that school entrance age has on a students' academic achievement (Ede, 2004; Griffin & Harvey, 1995; Grissom, 2004; Hedges, 1978; Quinlan, 1996). The underlying theoretical framework encompassed in this ongoing debate and examined in this study relates to students' age and gender. Studies like DeMeis and Stearns (1992); Gullo and Burton (1992); Trapp (1995) and Parks (1996) have found a positive link between delayed entry into school (age of the student at school entry), and improved academic performance. These authors recommended delaying a child's entrance into school as a possible way to improve academic performance. Grissom (2004) also found a positive relationship between age and academic success for some of the older children in his study, but argued "against modifying entrance age policies, delaying school entry or retaining students to improve academic achievement" (p. 1) on the basis of results with students deemed overage. As reported byJohnson (2011), gender may also have conceptual underpinnings linked to students' academic success. Elkin (2001) longitudinal study on school readiness factors, including age and gender, reported gender difference between students and considered at high readiness and low readiness for school to be insignificant.

2.2. Parent's Socio-economics and Academic Performance

The link between a child's socio-economic status (SES) and school achievement has undoubtedly drawn attention of several studies for decades. These studies have regarded family characteristics and socioeconomic status (SES) as most powerful predictors of school performance: the higher is the SES of the student's family, the greater is his academic achievement. This relationship has been documented in countless studies irrespective of the status (occupation of principal breadwinner, family income, parents' education, or some combination of these (Boocock, 1972). Similarly, Azhar, Nadeem, Naz, Perveen, and Sameen (2014) noted that parental education and Socio-Economic factors are of vital importance in effecting students' educational achievements. They are like backbone in providing financial and mental confidence to students. Explicit difference can be observed between those students who belong to different financial status and whose parental educational levels are also different. On the other hand the students having financial problems have to face various hurdles. Their financial problems distract them from their studies and they fail to get high grades and consequently have to suffer for finding a job. "The low socio-economic status causes environmental deficiencies which results in low self-esteem of students (US Department of Education, 2003).

2.3. Multimedia and Academic Performance

Research into teaching and learning with new technologies is currently a very dynamic and relevant area of educational system. Multimedia refers to computer-mediated information that is presented concurrently in more than one medium. It consists of some, but not necessarily all, of the following elements: text; still graphic images; motion graphics; animations; hypermedia; photographs; video; and audio, i.e., sounds, music, and narration. Multimedia can support multiple representations of the same piece of information in a variety of formats. This has several implications for learning (Ke (2008). Shah and Khan (2015) stated that the use of multimedia in teaching and learning make an impact on institutions of higher education. It comprises multi-sensory tools that stimulate multiple senses of audiences at the same time. "Its interactive nature enables teachers to control the flow of

information. Multimedia technology affects both aspects of teaching and learning. It has the potential to create high quality learning environments. With the capability of creating a more realistic learning context through its different media and allowing a learner to take control, interactive multimedia can provide an effective learning environment to different kinds of learners (Margie & Liu, 1997). Multimedia technology is probably one of the most exciting innovations in the information age. The rapid growth of multimedia technologies over the last decade has brought about fundamental changes in computing, entertainment, and education (Abd Mukti & Hwa, 2004).

2.4. Teachers Qualities

Teachers are the most important school-based influencers in affecting student achievement levels. Research shows that effective teachers act as the most important factor contributing to students' achievement. It is important for administrator to know what teacher characteristics influence student achievement and whether or not schools in different locations have dissimilar student achievement levels. This would help policy makers and education management to prioritize who to hire, retain, and assign classes (Rockstroh, 2013). Darling-Hammond (2000) reports that "measures of teacher preparation and certification are by far the strongest correlates of student achievement in reading and mathematics, both before and after controlling for student poverty and language status. Moreover, professional development for teachers is a key mechanism for improving classroom instruction and student achievement (Ball & Cohen, 1999; Cohen & Hill, 1998; Darling-Hammond & McLaughlin, 1995; Little, 1993).

2.5. Community and Academic Performance

The community a student lives in also has the potential to impact student's academic success. Throughout research the term community is often interchanged with the term neighborhood. The neighborhood that a student lives in is one of "the most important contextual influences on student academic outcomes" (Carlson & Cowen, 2015). Communities, whether impoverished or affluent, all have some strength and the potential to support students' academic success. According to Díez, Gatt, and Racionero (2011) the strength a community possesses "and more specifically the way it is used, may more accurately predict and explain students' school success than demographics or economic characteristics" (p. 185). An ecological framework can be applied to explain the impact communities have on student academic achievement. According to Emory, Caughy, Harris, and Franzini (2008) an ecological framework can be applied and "focused on the development of relationships" among a few contexts such as family, peer, school, and neighborhood in order to determine how these constructs influence students" "transition to kindergarten" (p. 886). Emory et al. (2008) noted that this ecological framework was a foundation that laid the groundwork for a theory. Research supports the importance of neighborhood behavioral norms, especially those related to safety, and social support from pro-social adults within the neighborhood (Hopson, Lee, & Tang, 2014).

2.6. Research Questions

1. What are the levels of influencers such as: gender, parents' socio-economic status, access to multimedia technology, teachers' personal and professional qualities and community influence on the Mathematics performance of students?
2. What is the relationship of the identified influencers on the mathematics performance?
3. What are the issues and concerns encountered by the students in learning Mathematics?

3. METHODOLOGY

Descriptive-correlation method was employed in this study to describe the relationship of the identified influencers and academic performance of the students in mathematics utilizing the data that were gathered through a survey questionnaire. This method answered the questions who, what, where, when, and how about the identified

influencers. In particular, the present condition of the respondents with regard to their academic performance and interplay between the influencers was described and analyzed through data gathered using the research instrument. The data were tallied, organized and analyzed using statistical procedure and tools to determine what the collected data tells about the relationship of variables involved in the study. 370 students were identified as the main respondents of the study. It was selected using simple random sampling from the population of the students of Cebu Technological University-North Cell Campus.

Three different sets of research instruments were utilized in this study: (i) Student Demographic Profile Sheet: This checklist collected information of the socio-demographic variables which included the personal profile, membership of organizations, academic background, parents socio-economic status, community influencers, and general influencers that could act as precursors to enhancing their Mathematcis performance. (ii)Multimedia Exposure Rating Scale for Students: This questionnaire was administered upon faculty to assess their technological needs and evaluate how well those needs were met over the life of the grant. The faculty concluded that the SMART® multimedia classrooms enhanced both student face-to-face participation and e-learning. (iii) Teacher Personal and Professional Influence to Students: This questionnaire was adapted from Ashraf, Bano, Ilyas, and Rehman (2013) which consisted of 30 closed-ended items. The respondents were provided five-point scale to respond each statement. The responses were coded from 1 to 5 i.e.,1=definitely not true , 2=seldom true ,3 sometimes true ,4=often true and 5 =definitely true . This scale was used to highlight the preferences of students for teachers' characteristics and traits in their character building, and to find out the traits of an ideal teacher.

4. RESULTS AND DISCUSSIONS

Table-1. Age and gender.

Age	Male		Female		Total	
	f	%	*f*	%	*f*	%
23 and above	31	8.00	17	5.00	48	13.00
22 years	20	5.00	8	2.00	28	7.00
21 years	28	8.00	9	2.00	37	10.00
20 years	61	17.00	27	7.00	88	24.00
19 years	81	22.00	52	14.00	133	36.00
18 years	24	6.00	10	3.00	34	9.00
17 years	2	1.00	0	0.00	2	1.00
Total	*247*	*67.00*	*123*	*33*	*370*	*100*
Ave. Age	20.11		20.03		20.08	

The difference between the numbers of youngest to the oldest students' and gender is presented in Table 1. Data showed that out of 370 total respondents, 247 or 67 percent were male students while 123 or 33 percent were female students. The number of male students who enrolled in BSIT was greater than the number of females. It can be justified from the fact that most of the specialization of this course was offered for male students though it can be observed that some female students also enrolled in courses offered for male. As to the age of the respondents, 81 or 22 percent of the males while 52 or 14 percent of the females were aged 19 years old and studying in the third year college which means majority of the respondents were in the proper age of schooling at the time of admission. It was also observed that many of the respondents were older than the expected age of 19 years old for a third year college student. A total of 88 or 24 percent of the respondents were 20 years old while 37 or 10 percent of the respondents were 21 years old. Twenty – eight or 7 percent of them were 22 years old. It can also be noted that 48 or 13 percent of them were 23 years old and above.

This distribution of the age of the respondents implies that many of them had either stopped schooling or had been retained in their previous levels in school. Students of the Cebu Technological University also belonged to poor families; hence, financial constraints could be one of the reasons for this situation. However, 34 or 9 percent of

the respondents were 18 years old and two or one percent of them were 17 years old. These students who are younger than the expected age may have entered school at an early age. Lastly, the average age for males was 20.11 years while the average age for females was 20.03 years. In general, the average age of all the respondents was 20.08 years old which is greater than the expected age of a third year college student in the Philippines. Jabor (2011) found out that some schools often retain students to a certain level even if they do not meet the standards of that level. This step is taken to ensure that standards are met before promoting to the next level; however this proves more disadvantageous to students instead of enhancing their academic performance. Furthermore, it was also found out that the older the students than their classmates, the more likely their academic performance would decline.

Table-2. Parents' Socio-economics Status.

Mother			Father		
Job	**F**	**%**	**F**	**%**	**Job**
Housewife	214	57.84	55	14.87	Driver
Vendor	20	5.41	46	12.43	Farmer
Factory Worker	18	4.87	62	16.76	Skilled worker
General Services	28	7.57	24	6.49	Fisherman
Professional Services	12	3.24	33	8.92	Laborer
OFW	6	1.62	8	2.16	Vendor
Farmer	5	1.35	26	7.03	General services
Business	5	1.35	16	4.32	Company worker
Skilled worker	5	1.35	12	3.24	Professional Services
Not indicated	57	15.41	9	2.43	None
			79	21.35	Not Indicated
Total	370	100.00	370	100.00	Total

Socio–economic status of the parents of respondents is shown in Table 2. The data about the mother of respondents reveal that 214 or 57.84 percent out of the 370 mothers were housewives. It can be understood that in most of the Filipino families, the fathers are the bread earners of the family and mothers act as the ones in charge of the other activities at home and in the family including taking good care of children. There were 28 or 7.57 percent of the mothers who provided general services while 18 or 4.87 percent of the mothers were vendors. There were 18 or 4.87 percent of the mothers who worked as factory workers and 12 or 3.24 percent provided professional services. There were six or 1.62 percent who were overseas Filipino workers while five or 1.35 percent were farmers, businesswomen and skilled workers. But 57 or 15.41 percent did not indicate the job of their mothers. It might be because they did not know what the job of their mother was or they might not have mentioned it for personal reasons. Rafiq, Fatima, Sohail, Saleem, and Khan (2013) found out that Parental involvement in a child's education along with environmental and economic factors may affect child development in areas such as cognition, language, and social skills. Sibanda, Hulela, and Tselaesele (2016) cited that research studies have shown that the income of parents have been found to have effect and influence on children's cognitive test scores, behavior problems, socio-emotional functioning, mental health, physical health, educational attainment, teenage childbearing, and labor market success in early adulthood (Mayer, 2002). Similarly, analysis of data indicates that students belonging to strong financial status perform better than those who face financial problems. Similarly, parental education boosted up their children's performance (Azhar et al., 2014). Moreover, Garzon (2006) suggested that SES played on important role in the academic achievements of students. The students with high level of SES performed better than the middle class students and the middle class students performed better than the students with low level of SES.

The extent to which the students had exposure and usage of the multimedia for academic purposes is displayed in Table 3. The respondents were very much exposed to computers, DVD player/VCR/TV, internet access, camera, and audio with an average ranging from 4.26 to 4.95 which consequently enabled them to always utilize

some of these multimedia with an average ranging from 4.42 to 4.87. While they were much exposed to external laptop connectivity, Microsoft office suite, MS media player, and microphone with an average ranging from 3.44 to 4.00 enabled them to oftentimes use some of these multimedia with an average ranging from 3.26 to 3.69. Moreover, the respondents were moderately exposed to data video projector, Adobe Acrobat Reader, Flash Software, Quick Time player, and Mac adaptor with an average ranging from 2.70 to 3.22 which the respondents sometimes utilized with an average ranging from 2.40 to 2.93 while they were less exposed to visual presenter, smart symposium, Smart notebook, and SPSS software with an average ranging from 2.00 to 2.23 which gave the respondents the lesser chance of utilizing these multimedia with an average ranging from 1.99 to 2.04. In general, the respondents were Moderately Exposed to these multimedia which gave them the chance to utilize sometimes these multimedia with an average of 3.36 and 3.12, respectively. Jackson (2014) recommended that policy makers at the state and local levels, including the central office, should encourage the use of technology as a priority for school systems.

Table-3. Multimedia exposure and usage.

Multimedia	Exposure		Usage	
	$\bar{X}$	Verbal Description	$\bar{x}$	Verbal Description
Data Video Projector	2.94	Moderately Exposed	2.66	Sometimes
Computer	4.95	Very Much Exposed	4.87	Always
DVD player/VCR/TV	4.39	Very Much Exposed	4.02	Often
Visual Presenter (ex. Elmo)	2.23	Less Exposed	2.04	Rarely
Smart Symposium	2.00	Less Exposed	2.13	Rarely
External Laptop Connectivity	3.55	Very Exposed	3.34	Often
Internet Access	4.26	Very Much Exposed	4.19	Often
Microsoft Office Suite	4.00	Very Exposed	3.54	Often
Smart Notebook	2.22	Less Exposed	1.99	Rarely
Adobe Acrobat Reader	3.04	Moderately Exposed	2.40	Sometimes
Flash Software	3.22	Moderately Exposed	2.93	Sometimes
MS Media Player	3.44	Very Exposed	3.26	Often
QuickTime Player	2.70	Moderately Exposed	2.57	Sometimes
Microphone	3.82	Very Exposed	3.69	Often
Camera	4.80	Very Much Exposed	4.42	Always
Audio	4.71	Very Much Exposed	4.52	Always
Mac Adaptors	2.70	Moderately Exposed	2.47	Sometimes
SPSS Software	2.16	Less Exposed	1.93	Rarely
Average Weighted Mean	*3.36*	Moderately Exposed	*3.12*	Sometimes

The perception of the students towards their teacher's personal and professional qualities is presented in Table 4. Data shows that Item 3 got the highest weighted mean of 3.52 which is considered very satisfactory. However, item 1 received the lowest response with regard to teachers' qualities-- it garnered a weighted mean of 2.08 which means that teachers' personality on this area is less satisfactory. In general, the teachers' personal and professional qualities are Satisfactory with an average weighted mean and a standard deviation of 3.13 and 0.28, respectively. Brahier (2009) noted that dispositions develop in students most effectively when teachers model the dispositions.

Teachers who are enthusiastic about topics that they present are likely to instill the same interest in their students. If one asks students why they like Mathematics or how they got interested in this subject, they would often name one teacher at a particular grade level who got them excited about Mathematics, and that excitement impacted their attitudes for the rest of their lives. Unfortunately, the same situation can be and often is true for those who dislike mathematics or even fear it. Significant findings emerged in the study of Jackson (2014) on

African – American male students on their perspectives about teachers' quality. It was found out that African-American male students do not pay attention to what is going on in class, but they pay attention to who is leading the class. At a ratio of over 97 percent, African-American males believe that they are capable of making good grades with good teachers, but when it comes to whom they perceive as bad teachers African-American males were split 41percent to 47 percent, with 41 percent believing that they score bad grades when they have bad teachers

Table-4. Teacher personal and professional qualities.

Teacher personal and professional quality	$\bar{x}$	Description
1. My teachers' exciting behavior also makes me excited	2.08	Less Satisfactory
2. My teachers' good social relation with others helps me to develop socially	3.06	Satisfactory
3. My teachers' good communication helps me to develop good elation with others	3.52	Very Satisfactory
4. My teachers' confident attitude gives me confidence	3.46	Very Satisfactory
5. My teachers' trust worthy relationship with students helps me to trust other	3.16	Satisfactory
6. My teachers' affectionate behavior helps me to deal affectionately with people	3.03	Satisfactory
7. My teachers' love with others helps me to deal affectionately with people	3.1	Satisfactory
8. My teachers' considerations in very affair help me to consider others problems seriously	2.99	Satisfactory
9. My teachers habit of managing the negative situations creates tolerance in me	2.86	Satisfactory
10. My teachers determination in his/her aims promotes determination in me	3.22	Satisfactory
11. My teachers firmness in his/her aims make me firm too	2.91	Satisfactory
12. My teachers unstable emotional attitude makes me emotionally in-stable	2.65	Satisfactory
13. My teachers restlessness makes me uneasy	2.75	Satisfactory
14. My teachers irritable mood makes me irritable too	3.01	Satisfactory
15. My teachers sad mood makes me depressed	2.94	Satisfactory
16. My teachers insight and foreseeing nature make me foreseeing too	2.88	Satisfactory
17. My teachers responsible behavior makes me responsible too	3.51	Very Satisfactory
18 My teachers neatness and attractiveness helps me to groom my personality	3.5	Very Satisfactory
19. My teachers habit of solving the problems motivates me to solve the problems of others	3.4	Satisfactory
20. My teachers good manner motivates me to behave well with others	3.48	Very Satisfactory
21. My teachers punctuality makes me punctual too	3.37	Satisfactory
22. My teachers well maintained personality helps me to manage myself	3.53	Very Satisfactory
23. My teachers contemplation of social traditions and moral values also helps me to keep these values	3.48	Very Satisfactory
Average Weighted Mean	3.13	Satisfactory
Standard Deviation	0.28	

Perceived community activities that might influence students performance in mathematics is presented in Table 5. A majority of them, 332 respondents, claimed that they were not influenced by any of the activities in their community which ranked number one in the perceived community influences, followed by second in rank were 330 respondents who claimed that lawn tennis was one of the activities that influenced them It was followed by the basketball league with 124 respondents which ranked number three among the community influencers. The other activities that followed included the festivals, dota tournament, Sinulog dance, CVRAA meet, feeding program,

organizing a church activity, mangrove planting, volleyball league, SK elections, being a dancer, being a member in youth organization and being one of the propsmen as community activities influencing them. Similarly, the study of Lopez, Kreider, and Coffman (2005) showed that organizations worked to make it easier for parents to participate in relationships with schools. By increasing their knowledge, skill, and confidence, community organizations served to empower parents. The organizations in the study also worked to improve family-school relationships as a way of improving children's social-emotional development. Organizations also created a support system to help schools develop and implement better family involvement programs.

Table-5. Community Influencers

Community Influencers	Total	Rank
None	332	1
Lawn Tennis	330	2
Basketball League	124	3
Festival	96	4
Dota Tournament	93	5
Sinulog Dancer	91	6
CVRAA	83	7
Feeding Program	54	8
Organizing a Church Activity	48	9
Mangrove Planting	46	10
Volleyball League	32	11
Election for SK	24	12
Dancer	22	13
Youth Organization	19	14
Propsmen	12	15

Table-6. Extent of influence of general influencers.

General Influencers	TOTAL								
	1	2	3	4	5	6	7	$\bar{x}$	RANK
Home/Family	280	32	15	8	7	3	5	1.28	6
School Environment	14	87	110	57	49	19	7	2.99	4
Classmates/Peers	25	83	85	80	42	18	10	2.93	5
Community	6	28	45	73	92	53	46	3.42	1
Media	3	9	25	44	43	117	102	3.21	2
Emerging Technology	10	20	29	39	54	91	100	3.00	3

Table 6 shows the extent of influence affected by the general influencers of respondents. Among the general influencers, the community ranked first according to the perception of the respondents with regard to influencing them. It was followed by the media which ranked number two as perceived by the respondents towards influencing them and emerging technology ranked third among the influencers. The school environment, classmates/peers and the church ranked fourth to sixth, respectively. It is noteworthy that the family has the least influence among respondents.

Most of the respondents were teenagers. At this stage, they were more exposed to the community however they were mature enough to make decisions. People around can influence them the most because they are expected to be more sociable at their status in life. In order to maintain good relationship to others, they should conform to the standards of the society which they belong to. Moreover, media, emerging technology, and school environment are also the leading influencers of the respondents. In this generation, students are more influenced by media and technology because they have easy access to these influencers. Through their gadgets such as cell phones and computers with internet access, they were able to access new information that would probably affect their views in life. But it is noteworthy that the home is the least influencer of the respondents. While they were still young, the parents and siblings were the direct ones that influenced them. As they grew older, they explored the society which

in turn changed their perception on how to deal with life through the influence of people other than their family members. That is why, at this stage of the students conflict among the family usually arose because of the principles that students may get from being exposed to the environment outside the family. The study of Bishop and Pflaum (2005) on the middle schoolers identified four social dimensions of the classroom as critical influencers of their subsequent academic engagement. Two dimensions were named as enhancing their engagement: community and leadership; and the other two were detracting from it namely distraction and judgment.

5. RELATIONSHIP BETWEEN MATHEMATIC PERFORMANCE AND THE INFLUENCERS

Table-7. Relationship between Mathematic performance and the influencers.

Variables	Df	Computed Value (X^2)	Critical Value (X^2)	p - value	Decision	Remarks
Academic Performance In Mathematics and Influencers	12	12.19	20.45	0.4309	Do not Reject Ho	Not Significant

Note: *significant at $p < 0.05$.

The relationship between mathematics performance and the factors are shown in Table 7. Data was tested using chi – square at 0.05 level of significance, with the degrees of freedom at 12. With the computed (x^2) value of 12.19 which is less than the critical (x^2) value of 20.45 (12.19 < 20.45) and a p – value of 0.4309 which is greater than the significance level of 0.05 (0.4309 > 0.05), the null hypothesis is not rejected. The result suggests that the influencers do not significantly affect the performance of the respondents. There are factors that may influence the respondents yet these do not have bearing on their academic performance since the respondents are already matured enough that they are already more rational in their decision making. Thus, the aforementioned factors such as the community, media, emerging technology, school environment, classmates/peers, church and home/family are not related to the mathematics performance of the respondents of this study.

In contrast, Epstein recognized how social organizations of school, family, and community connect, which he refers to as spheres of overlapping influences. These spheres of influence directly affect the learning and development of the student. As these spheres interact, the student will more likely receive common messages such as working hard, thinking creatively, or helping one another, and of staying in school (Epstein, Lindqvist, Geppert, & Olsson, 2009). Moreover, a study of Sibanda et al. (2016) showed that the general performance of students in schools had mainly been affected by factors such as lack of resources, discipline and poor morale, problems concerning the implementation policies, and inadequate parental involvement.

Table-8. Issues and concerns encountered by the students in learning mathematics

Issues and Concerns in Learning Mathematics	*f*	*%*	*Rank*
Mathematics is a boring subject	43	11.6	2
I am confused with Mathematics because of the technical symbols	34	9.19	5
I am not interested with the lessons in Mathematics	20	5.40	11
I can learn new things from other subjects but not in Mathematics	13	3.78	12
I do not like Mathematics because of my teacher	38	10.00	3
Class Size	27	7.03	8
Enrol or not enrol- I'd rather not enroll	36	9.46	4
I am confused dealing with problem solving in Mathematics	22	5.95	9
I cannot understand what my teacher discusses in Mathematics	33	8.92	6.5
I can easily forget the lessons in Mathematics	33	8.92	6.5
I cannot connect Mathematics lessons to real life situations	21	5.68	10
Attend the classes due to the requirements in my course	52	14.05	1

The issues and concerns encountered by the students in learning mathematics are shown in Table 8. Based on the table, the statement *"I just attend Mathematics classes because that is one of the requirements in my course"* ranked first among the issues and concerns in which 52 or 14.05 percent of them claimed that they only attended classes in Mathematics because it was one of the requirements of their course while *"Mathematics is a boring subject"* was ranked number two among these issues and concerns in which 43 or 11.6 percent of the respondents claimed to be bored in Mathematics. The statement *"I do not like Mathematics because of my teacher"* got 10 percent and rank three by those who claimed their dislike in Math due to their teacher. The statement *"If given a chance to enroll or not enroll Mathematics, I'd rather not enroll it"* got 9.46 percent that made to the fourth rank wherein students claimed that if they were given a chance to choose what to enroll, they would not enroll in Mathematics.

Moreover, the statement *"I am confused with Mathematics because of the technical symbols"* ranked fifth and got 34 or 9.19 percent of the respondents who claimed that they were confused with symbols while the statements *"I cannot understand what my teacher discusses in* Mathematics*"* and *"I can easily forget the lessons in* Mathematics*"* got 33 or 8.92 percent which ranked 6.5 among the issues and concerns. The statement *"I cannot concentrate learning* Mathematics *lessons because we are too many in class"* ranked eighth which got 27 or 7.03 percent among the respondents while the statement *"I am confused dealing with problem solving in* Mathematics*"* ranked ninth which got 22 or 5.95 percent of the respondents. The statement *"I cannot connect Math lessons to real life situations"* ranked tenth which got 21 or 5.68 percent of the respondents while *"I am not interested with the lessons in* Mathematics*"* ranked eleventh which got 20 or 5.40 percent of the respondents claimed these issues.

Lastly, the statement *"I can learn new things from other subjects but not in Mathematics"* got 13 or 3.78 percent of the respondents claimed that they can learn new things other than in Mathematics. Mutai (2010)noted that students were aware that mathematics is important in their lives so they are willing to learn it well however affect their attitudes acquired from previous experience in the subject, similar to how their teachers, parents and peers affected their learning of the subject.

6. CONCLUSION

Based on the findings of the study, it can be concluded that the factors identified were not significantly affecting the academic performance of the students in Mathematics. There is a need to explore further as to what are the variables that affect the satisfactory performance of the students. Furthermore, the main problem met by the students in learning Mathematics is attending Mathematics classes because it is one of the requirements in their course. Educators should impart to the students the importance of learning Mathematics because they need their skills in this subject in solving some of their problems in life.

7. IMPLICATION TO PRACTICE

Our findings revealed that students have varied learning styles that need to be considered. The factors identified in this study did not significantly contribute to the overall academic performance of the students. Hence, the researchers would like to encourage future researchers to dig deeper on the factors inside and outside school premises that could influence the students' academic performance.

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