

Mathematical Performance of Freshman Students' vis-à-vis Admission test Results

Joseph D. Reyes, LPT, MAEd

Pampanga State Agricultural University, Philippines

joseph_reyes2012@yahoo.com

Abstract— *The descriptive correlational method of research aimed to analyze the mathematical performance of high school freshmen in relation to their admission test results. Specifically, it sought to answer the following questions: 1.) What is the profile of the respondents in the terms of age, gender, and types of elementary school graduated? 2.) What is the mathematical performance of the respondents? 3.) Is there a significant relationship between the mathematical performance and the profile of the respondents in terms of age, gender, and types of elementary school graduated? 4.) What are the admission test results of the respondents? 5.) Is there a significant relationship between the admission test results of the respondents and their profile in terms of age, gender, and types of elementary school graduated? 6.) Is there a significant relationship between the mathematical performance of the respondents to their admission test results? 7.) Is there a significant difference in the mathematical performance between ASC and VAC respondents? 8.) Is there a significant difference in the admission test results between ASC and VAC respondents?*

Findings revealed that the mean age of the respondents was 12.96 (ASC) and 12.80 (VAC). There were more female than the male students in the VAC, while of the same number among the ASC. More public elementary graduates were found in the VAC while lesser in the ASC program. Talking about the mathematical performance, the ASC obtained 29.42 (Good); the VAC was 25.15 (Good). The admission mean scores of both programs were 38.04 and 32.13 described as both Satisfactory.

The relationship of the mathematical performance and the admission test results to the age, gender, and types of elementary school of the ASC and VAC respondents were not significant. Relationship between the mathematical performance and the admission test results was significant.

Difference in mathematical performance and admission test results between ASC and VAC respondents was significant.

In reference to the foregoing summary of findings and conclusions, the following recommendations are hereby provided: Different approaches such as cooperative learning, making topics practical and workable, and student's perceptions towards Mathematics should be taken into considerations in teaching Math to ASC and VAC students to enhance their mathematical abilities and become very satisfactory in Mathematics. Elementary teacher should provide deeper concepts to prepare grade six students for the different school admission test. A similar study should be conducted that will trail the Mathematics learning process of the students from first year to fourth year high school. Further study should be conducted to include factors, which were not considered in this study.

Keywords— *Mathematics Performance, Admission Test Results.*

I. INTRODUCTION

Mathematics is a series of challenges and hurdles, which many students face with passion and determination. It is a daily experience of continued failure and irrelevance for others. As the community goes beyond on its rapid changes, basic mathematical knowledge is one of the keys, which will give students the flexibility they need in order to adapt this changing society.

It has been a belief that Mathematics is a difficult subject. While it is true that mathematical concepts and principles are not easily learned, much difficulty is expected in a learner who considers Mathematics a burden to his studies and feels a dislike for it. Thus, the teachers' primary concern in teaching Mathematics is to develop the learner's appreciation of the subject (Seras, R. L., 2009).

Every year, there is always an increase in the number of students seeking admission into various schools, particularly within a specific colleges and universities. With its trend, the educational planners recognize the importance of determining the livelihood of success or failure of high school students, so as to prevent wastage in the form of human and financial resources as well as time and effort spent by the students and their parents.

It is high time, therefore, that the admission to high school be selective and valid measures be developed to screen students who are entering secondary schooling. Authorities in educational planning hold the view that those students who lack the qualification to do serious high school work be eliminated and those who can cope be retained. This will minimize the great deal of failure and frustration, unhappiness and wastage that usually occur when students enroll in secondary school wherein they have neither the aptitude nor the training.

Nowadays, most of the learning institutions here and in other countries have established certain standard to determine who will be admitted to study and who will be retained. Most of the learning institutions especially state colleges and universities use a combination of elementary grade point average and the admission test scores (Burgess, 2011). However, are these admission criteria valid in predicting the academic performance of the students? This is the reason why the researcher was motivated to determine the mathematical performance of high school freshmen in relation to their admission test results.

In this new generation, one faces the broadest growth of reliable complex society. Moreover, one needs to help students on how to improve their potential domains. This progress will be undertaken through their academic performance as well as by focusing through the admission test that was administered by the institution itself.

In this light, when all of these will be implemented, there will be good chance that will lead to an excellent result in a local or in a national achievement examination. If these things will be performed there will be progressive changes in working towards increasing achievements and eradicating mathematical discharges.

II. CONCEPTUAL FRAMEWORK

The bottom line behind the concept of this study was to determine the relationship of the mathematical performance of the respondents to their admission test results. The respondents of this study were the freshman high school students of Pampanga Agricultural College - Laboratory School taking Mathematics 1 (Elementary Algebra) for school year 2015-2016.

Figure 1 shows the paradigm of the study. The conceptual framework of this study was patterned from descriptive map, which was also called as thematic map. It was developed to determine the relationship between the mathematical performance and admission test results of the respondents.

The test administered by the researcher and by the school admission test was used to determine the mathematical performance of the high school freshmen. The content of the test was based from their past lesson in Mathematics 1 (Elementary Algebra). The profile of the students in terms of age, gender, and types of elementary school graduated from was correlated to the mathematical performance and admission test results of the respondents.

At the end of the study, the researcher expected to determine the relationship between the mathematical performance of the high school freshmen to their admission test results and the relations of each variable to the profile of the respondents as well as the difference between ASC and VAC respondents.

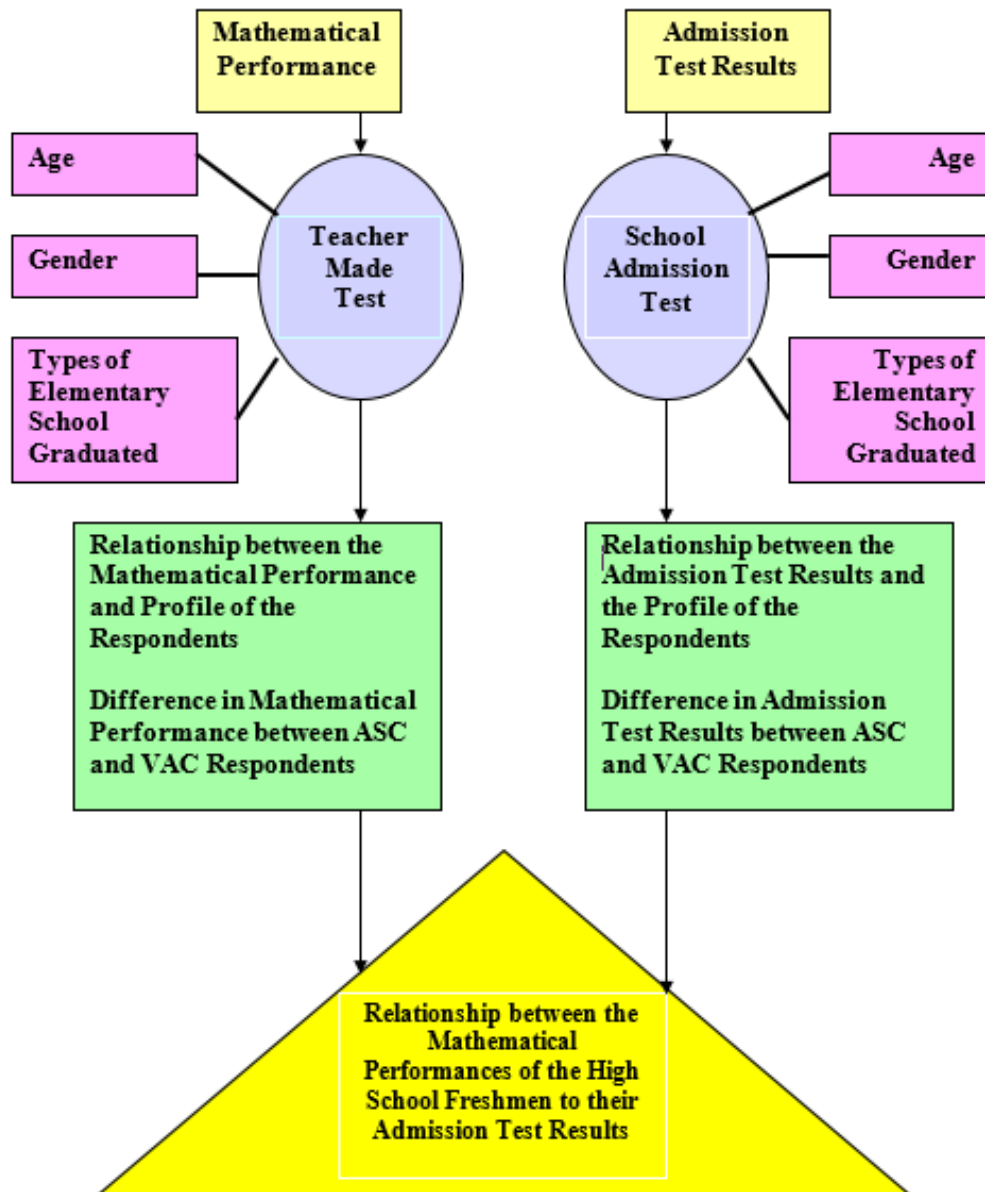


Fig.1: Paradigm of the Study

Statement of the Problem

The primary purpose of this study was to determine the relationship of the mathematical performance and the admission test results of the high school freshmen of Pampanga Agriculture College-Laboratory School for the school year 2015-2016.

Specifically, it sought to answer the following questions:

1. What is the profile of the respondents in the terms of:
 - 1.1 age;

- 1.2 gender; and,

- 1.3 types of elementary school graduated from?

2. What is the mathematical performance of the respondents?

3. Is there a significant relationship between the mathematical performance and the profile of the respondents in terms of:

- 3.1 age;

- 3.2 gender; and,

- 3.3 types of elementary school graduated from?

4. What are the admission test results of the respondents?
5. Is there a significant relationship between the admission test results of the respondents and their profile in terms of:
 - 5.1 age;
 - 5.2 gender; and,
 - 5.3 types of elementary school graduated from?
6. Is there a significant relationship between the mathematical performance of the respondents to their admission test results?
7. Is there a significant difference in the mathematical performance between ASC and VAC respondents?
8. Is there a significant difference in the admission test results between ASC and VAC respondents?

III. REVIEW OF RELATED LITERATURE AND STUDIES

Foreign Literature

Hating Mathematics is as much as national pastime as complaining about the weather and mathapobia is so acceptable that one can readily make light of it, but of course, it is a very serious matter, that has serious implications for many children. Mathematics is not just a complex collection of skills, concepts, and ideas that endeavor to pass on to the next generation.

Berger (2001) stated that achievement test is designed to measure how much a child has accomplished or learned in a specific subject area. It reveals not only what children have learned, but also their weaknesses in specific skills or subject areas. In several states, achievement tests are used to determine whether students will be promoted within each grade level, they are sometimes used to group students so that the poorest achievers are in one class and the better achievers in another. In addition, achievement test scores of group of children are used by the administrators to evaluate how individual teachers on a school system are doing.

When it comes in gender differences, Downey and Vogt Yuan (2005) explained that sex differences in school performance are heavily geared toward explaining boy's small advantage on standardized Math Tests and broaden the focus to include educational outcomes for which girls typically do well – standardized reading tests and Math and English grades. They also revealed that among adolescents in the National Education Longitudinal Study, girls enjoy better English and Math grades and higher reading test scores than boys in eight grade and these advantages all

increase during high school. In contrast, boys earn slightly by the end of high school. Finally, Downey and Vogt Yuan found out that a major reason for sex differences in grades is boy's power classroom behavior while sex differences in time spent outside of school should supplement previous explanation for test scores gaps.

In contrast, according to Linberg, Ellis, Linn, and Williams (2008) revealed that there is no gender difference in Mathematics performance. After sifting through mountains of data including the State Admission Test results and Math scores from seven million students who were tested in accordance with the No Child Left Behind – a team of scientists answered no.

Base from Hyde (2008), psychology professor from the University of Wisconsin – Madison, though girls take just as many advanced high school Math courses today as boys and woman earn 48 percent of all Mathematics bachelors degree, the stereotype persists that girls struggle with Math. Using data from more than seven million students, they then calculated the effect size, a statistic that reports the degree of difference between boys and girls average Math scores in standardized units. The effect size they found – ranging from 0.01 and 0.06 – were basically zero, indicating that average scores of girls and boys were the same. Boys bit teeny bit better in some states, and girls did a teeny better in others, but when averaging them all, essentially get no difference.

On the other hand, admission test has been developed to serve primarily as a decision-making instrument for guidance and/or students selection purposes in the Philippine Educational System. Basically, this concerns the selection of the best possible entering freshmen that the school can accommodate which is similar to the total number of the applicants. Students identify as incapable of doing high school or college works are discouraged from further schooling.

According to Collins (1999), the outcome of student's performance in both the academic and that of the entrance test is a reflection of their previous learning. But these reflections are actually guides in decision-making that can affect future achievements in education. Teacher needs to continually reflect upon the outcomes of their teaching efforts. Reflective teachers constantly ponder the successes and failures of their teaching. Such teachers are never totally satisfied with the outcomes of any given lessons, but rather constantly evaluate their teaching performance in a reflective way.

In view of this, Burgess (2011) revealed that the most learning institutions here and in other countries have established curricular standards to determine who will be admitted to study and who will be retained. Burgess examines the effect of the increased retention standards and provides information whether the retention standards are appropriate and if the goal often enhancing student success is being met. Most of the learning institution especially states colleges and universities use a combination of the elementary grade point average and the admission test scores. However, are these admission criteria valid in predicting mathematical performance of the students? Through this, the results of the study confirm the expected initial increase in the percentage of suspended which is now declining the higher retention standards have not changed the historic distribution among racial and gender groups. Also persistence and graduation rates are generally improving.

Local Literature

Most students today have difficulty in understanding the lesson in Mathematics because of various reasons. These reasons include the ways the teacher carries out his lessons in the class. If this scenario will be addressed, teacher – factor will not be a reason for low performance in Mathematics subject.

Jubelag (2006) studied the effects of the four basic operations on the academic achievement of pupils in Mathematics and found out that the problems are met by analyzing the possible causes and were counteracted by possible solutions. Action taken or strategies that were administered were giving daily practice to pupils in the four basic operations, having a dialogue with parents every month about their children's progress, fund raising for the giving of incentives to children, giving daily formative tests and assignments, monitoring strictly the pupil's attendance and requiring children to read and study their lesson during their free time. In the end, she revealed that if the children can master the four basic operations and can comprehend, he/she would likely excel in Mathematics subject.

Eventually, it has been reported by the Trends in International Mathematics and Science Study (TIMSS) conducted several countries shared some of the dismal findings from the Philippines, while wondering why the government was not using the statistics to find the ways to address the problems.

It has been underscored by Tan (2006) the urgency of the educational crisis by sharing a bit more information about the scores compared to the other countries. For the 4th graders, the Philippines ranked 23rd among 25 countries in both Mathematics and Science. With the test for 8th graders (second year high school in the Philippines), the Philippines ranked 40th in Mathematics and 41st in Science between 45 countries. Among the Asian countries that participated, in the Philippines had the lowest scores for 4th and 8th grade in Science and Mathematics.

Prof. Talisayon (2006) from the University of the Philippines, who was the national research coordinator for TIMSS in the Philippines, sent additional information about TIMSS, which should bring more hope. She pointed out that there was a gender that needed to be examined in TIMSS. She observed from international TIMSS reports table, that in the Philippines, females did better than males in both Mathematics and Science. Professor Talisayon clarified what was statistically significant. Internationally, there were no statistically significant differences except in grade eight, with boys doing better. Yet in the Philippines, the girls scored better than the boys in 4th and 8th grade in Math, as well as 4th grade in Science. Professor Talisayon suggested that “maybe there is a gender differences in study habits and class participation in our culture. A further study can look in the reasons for gender differences. This gender analysis is just one example of what you can do with studies like TIMSS. For years now, there have been scientists who say that “by nature” males do better than females while others, like the Philippines, have females doing better than males. “Moreover, taken as one international study, the TIMSS results did not show statistically significant differences” Prof. Talisayon admits.

With that, the country is far below compared to the other countries achievement. And the government is aware of it. Education is really important not only personal advancements but also for the good of the community. In one of this lectures, former Secretary Estrella F. Alabastro (2004), quoted former President Gloria Macapagal Arroyo's statement calling for the upgrading of Mathematics and Science teaching in the country to prepare the youth to be the next generation of knowledge worker.

On the other hand, the importance and role of entrance tests, as well as intelligence tests in the educational institutions for admission, counseling, promotion, and ability classification purposes have caught the interest and concern of educators.

Poster (1999) showed correlation between entrance examination results and academic achievements of UP High School students. From the result of her study, she pointed out certain expressed relationship on r 's of the entrance test results and grades of the students. The correlation coefficient of 0 – 4 or greater showed significant at 1% level. Pico (1999) investigated the relationship of mental ability in English, ability in Mathematics, and ability in Science, fourth year high school average and socio – economic status with achievement in college.

In the end, Gonzales (2003) suggested that the remedy for better achievement is not racial comparison and the creation of a subculture in the Filipino family that will praise academic achievement especially in Mathematics. This is the work of generations, a tradition arising from family values nurtured by a culture. The secret, therefore, is not so much genes but gently introducing disciplines in the home especially among newly married couples for the next generation.

Foreign Studies

Sox (2002) studied about the students' performance in the entrance examination and its connection to their actual achievements is vital information for change. Teachers and education officials have the scenario at hand their needs to be addressed, given attention and disseminate to all concerned. This dissemination of knowledge matter for modifying educational practice carries with it a responsibility for prudence, caution, and restraint. The purpose of dissemination is to inform, and not to persuade on cajole into accepting an innovative idea or product.

Likewise, Rao and Reddy (2005) said that the Secondary Level Examination Programmed represents a particularly interesting of a new kind of programmed initiated by the School Entrance Examination Board. The Secondary Level Examination Programmed meets a part of this need by providing measures for evaluating the educational background of the individual seeking credit for studies pursue outside the traditional high school environment. Each school determines its own use of the programmed and decides what level of performance must be reached before the student is considered competent in the areas specified by the department.

One traditional aspect of teaching programmed deserved mention the administrative policy control. Testing programmed is often under the direction of the private educational agency. In turn, these organizations are often

composed of a member of school or colleges, who determine policy for the programmed sponsor. These private agency frequently contract with an independent testing agency for the test development and test administration activities. For example the School Entrance Examination Board contract with the Educational Testing Services in the construction and administration of the School Board Examination.

Myeong and Crawley (2006) used the theory of reasoned action to predict and understand Korean high school students' track choice for college entrance. First year high school students from four representative regions of Korea participated in the study. The target behavior of interest in this study was Korean students' choice of the science track application forms during the first year of high school. Predictors included TRA model and external variables. Multiple regressions and the structural equation modeling with LISREL were used to analyze the data. Subjective norm was found to exert a direct influence on personal beliefs and the target behavior.

In the end, according to Montgomery (2000) as cited by Buqeron (2006) observed that the ability grouping of junior high school students represent a powerful instructional prediction about the students' likely performance on the entrance examination and their placement in senior high schools. It also creates an organizational context in which instruction oriented into entrance examination can be intensified for students in the higher ability groups, who are expected by the teacher, parents, and themselves to score well and to be placed primarily in academic school – what Chinese critics refer to us is the tianya (force feeding of ducks) style of instruction. Students in the lowest ability level are expected to do poorly on the examinations and to gain admission mostly to the list selective, lowest prestige educational schools or to leave the school altogether. He also stressed that entrance examination system for high school plays an important part in the educational attainment process in Taiwan. The reputation of junior high school depends on the success of their students on the senior high school entrance examination. Principals and teachers are concerned of course, with the proportion.

Local Studies

Gomez (2010) studied about the predictors of mathematical ability of fourth year high school students in Mabalacat, Pampanga. He revealed that reading

comprehension and verbal ability varied because public schools obtained an average level. The results also showed the mathematical ability of both groups of participants were at an average level. He had found that there was no significant difference between the mathematical abilities of participants and there was a significant relationship between the average grade in Math and mathematical ability of the participants.

The study recommended that Mathematics teacher must administer formative and summative evaluation in Mathematics to ascertain that student's level of mastery is regularly quantitatively monitored. It is also recommended that English teachers must implement the reading program, develop and sustain desired level of reading comprehension of the students. This may contribute to their competence to comprehend mathematical concepts, which is a requisite in problem solving.

Guzman (2004) in his study about the difficulties encountered by freshman students in College Algebra at Pampanga Agricultural College revealed that more students from public schools failed in the examination. He had found that the type of school attended did not significantly affect the difficulties encountered in College Algebra. The overall performance in the test revealed that lesson III (Rational Expressions, Exponents, and Radicals) and lesson V (first and second degree equations) were difficult lessons. The study recommended that teachers should provide more time in discussing difficult lessons, create friendly environment among students, more exercises and assignments must provide, review the previous lessons and lastly, find time to attend relevant faculty development programs like seminars and workshop.

Serrano as cited by Manlapig (2001) in her study about the mathematical difficulties of freshman students of vocational school, recommended that intensive and functional skills and practices should be given in the four fundamental operations which are good foundations in solving word problem effectively and efficiently.

She also recommended that Mathematics vocabulary should be explained and illustrated before attempting to solve word problem. And lastly, she recommended that students should be grouped according to their level of abilities in Mathematics and provides remedial instruction according to their needs; numerous opportunities for self-discovery in teaching mathematical concepts should be given to students.

According to Medina (2005) in his study "The Mathematical Readiness of Students General College Physics I at Negros Oriental State University" revealed that the students taking general College Physics I in Negros Oriental University lacked the necessary proficiency in Mathematics required to tackle the subject. The test results showed that the students have not mastered the basic skills in the different areas of Mathematics. The results also showed that, in general, mathematical skills are related to sex, with females scoring consistently higher; to types of high school graduated from, with those educated from private high school scoring slightly higher than those from public schools; to attitude towards Math, with scores significantly getting better with more positive attitude towards the subject; and to grades in both College Algebra and Trigonometry with those getting higher grades also scoring better in the test.

It was also found that the students exhibit the highest level of proficiency in the areas of solving a right triangle and on numbers and arithmetic. However, it must be noted that there was still lack of mastery in these areas, as well as in the rest of the other areas studied especially in algebra and manipulating equation where the students showed the weakest proficiency.

On the other hand, Pico and Lupdag (2000) studied about the College Admission Test as predictors of Academic Performance of common first year students at Central Luzon State University revealed that students who perform well in College Admission Test are likely to perform well in his first year in college. Also their studies revealed that College Admission Test scores can predict grades in English, Mathematics, and Science.

In line with this, Petero, Tantingco, and De Ocampo (2006) conducted a study about the academic performance of freshman college students of the Institute of Arts and Sciences in relation to their scores in the College Admission Test. Their objectives were attained by describing the freshman college students of Tarlac College of Agriculture, Institute of Arts and Sciences in terms of their fourth year grade point average; scores in English, Mathematics, and Science and their overall scores in college admission test; grades in English 1, Mathematics 1 and Science 1 and their overall academic performance for the first semester S.Y. 2005 – 2006 and by determining the relationship between their scores on English, Mathematics, and Science in between their scores in English, Mathematics and Science in the College Admission Test

and their grades in English, Mathematics, and Science subjects respectively. Statistically, their study revealed that students who performed well in his fourth year high school and in College Admission Test are likely to perform well in his first semester/year in college; also their study revealed that College Admission Test scores predict grades in English, Mathematics, and Science and the overall academic performance.

IV. RESEARCH METHOD

The descriptive correlational method of research was used in the study. This method was designed to determine if two or more variables are associated with each other. According to Best (1981), descriptive correlational method of research is the method that deals with the relationships between variables, the testing of hypotheses, and the development of the generalizations, principles, or theories that have universal validity.

With the utilization of the descriptive correlational method of research, careful selections of the needed data

were considered and systematically processed in terms of their importance to the study, and the relationships that may exist between them and the other variables.

To attain the objectives of the study, the researcher used the descriptive correlational method of research to analyze the Mathematical Performance of the High School Freshmen of Pampanga Agricultural College S.Y. 2015 – 2016 and the result of PAC Admission Test given to intermediate students conducted by the Guidance and Testing Center of PAC for the Admission of incoming first year high school students for S.Y. 2015 – 2016.

Respondents of the Study

The 155 high school freshmen of the Pampanga Agricultural College - Laboratory School who were taking Mathematics 1 (Elementary Algebra) during the School Year 2015 – 2016 were the respondents of the study. They were grouped into four (4) homogeneous sections based on their ranking during the PAC Admission Test. The table below presents the distributions of the respondents.

Number of Respondents per Section

Program	Male	Female	TOTAL
ASC	16	14	30
VAC I – A	18	23	41
VAC I – B	18	24	42
VAC I – C	18	24	42
TOTAL	70	85	155

Names of the respondents were withheld and represented by numbers arranged in an order for reason of confidentiality. The list of the respondents' names was requested from the Guidance and Testing Center of PAC. Those who appeared in the master list of qualified examiners during the PAC Admission Test but did not actually enroll, or those who were not able to finish the school year for some valid reasons were not included in the study.

Research Instrument and Data Gathering

The teacher made test prepared by the researcher was used in order to determine the mathematical

performance of the respondents. Their lesson in Mathematics I served as a basis in order to create the items of the test using the one-way table of specification. The researcher used a peer assessment for the validation of his test and a try out for four respondents from the four sections. Those four respondents were chosen through random sampling. The results of the test served as the first variable.

Second, the researcher utilized the documentary analysis to gather the needed information in the study. All information were obtained from the Office of the Laboratory School Principal or from Guidance and Testing Center of PAC, where the Admission Test was conducted.

Gender, types of elementary school graduated and age of the respondents were obtained from the questionnaire, which was inserted to the test prepared by the researcher. The result sheets of the final round of the Admission Test were considered in the study. Permission letters were done addressed to the Principal and to the Director of Guidance and Testing Center and upon approval of the said letters, the data were gathered from each office.

Treatment of Data

The data that were gathered from the Guidance and Testing Center, Office of the Laboratory School Principal and the scores of the respondents in Mathematics 1 which was conducted by the researcher was sorted out, classified, tabulated, analyzed, and interpreted to answer the questions raised in the study, and to test the acceptance of the hypotheses.

The following statistical tools were used to analyze and interpret the quantitative data that were gathered from the study: Percentage, Mean, Spearman Rank Correlation Coefficient, Kuder – Richardson Formula 20, Chi – Square, Analysis of Variance One Way Classification (ANOVA 1), T-test for Independent Samples (T), and Pearson Product Moment Coefficient of Correlation (r).

To interpret the computed r – value and KR₂₀, the following scales were used:

- ±1.0 ----- Perfect Correlation
- ± 0.91 – 0.99 ----- Very High Correlation
- ± 0.71 – 0.90 ----- High Correlation
- ±0.51 – 0.70 ----- Moderate Correlation
- ± 0.31 – 0.50 ----- Low Correlation
- ± 0.01 – 0.30 ----- Negligible Correlation
- 0.0 ----- No Correlation

The interpretation for the admission test results and mathematical performance were organized, tabulated, and interpreted, (David, 2007):

Raw Scores	Descriptive Rating
39.50 – 50.00 -----	Excellent (E)
29.50 – 39.49 -----	Satisfactory (S)
19.50 – 29.49 -----	Good (G)
9.50 – 19.49 -----	Fair (Fa)
0 – 4.49 -----	Failed (F)

The basis for the range was the 50 item admission test results and mathematical performance.

V. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

I. Profile of the Respondents as to Age, Gender, and Types of Elementary School Graduated from

For the 26 ASC respondents, the modal age was 13 and the mean age was 12.96 while for the 109 VAC respondents, the modal age was also 13 and their mean age was 12.80. The females had the same number like the males with the ratio of 50% (13) is to 50% (13) in the ASC program, while in the VAC program, the females were more than the males with a ratio of 52.29% (57) is to 47.71% (52). The public elementary school graduates in both ASC and VAC programs with a ratio of 46.15% (12) is to 53.85% (14) and 72.48% (79) is to 27.52% (30), respectively, showing that the majority counts from the public elementary school graduates.

II. Mathematical Performance and Admission Test Scores

As reflected in table 1, the mathematical performance average grade of the ASC respondents was 29.42 which was interpreted as Good (G) while the VAC respondents mean grade was 25.15 which was also interpreted as Good (G). The admission test results average score of ASC respondents was 38.04 which was interpreted as Satisfactory (S), while VAC respondents average score was 32.13 which was also interpreted as Satisfactory (S).

Table 1. Mathematical performance and admission test scores of the respondents

Category	ASC		VAC	
	Mean	Descriptive Rating	Mean	Descriptive rating
Mathematical Performance	29.42	Good (G)	25.15	Good (G)
Admission Test Results	38.04	Satisfactory (S)	32.13	Satisfactory (S)

III. Relationship between the Mathematical Performance and the Age, Gender, and Types of Elementary School where the Respondents Graduated

Relationship between the mathematical performance and age of the ASC respondents revealed that the obtained F-ratio of 0.0024 was not significant, while for VAC was 0.89, which was also not significant. As to the gender, the obtained chi-square value of ASC and VAC respondents were 0.005 and 1.61, which were both not significant. Relationship between mathematical performance and types of elementary school graduated from obtained T- test value of 0.61 and 0.28 for ASC and VAC respondents, respectively, showing relations that were not significant.

IV. Relationship between the Admission Test Results and the Age, Gender, and Types of Elementary School where the Respondents Graduated

Relationship between the admission test scores and age of the ASC respondents revealed that the obtained F-ratio of 0.90 was not significant, while for VAC respondents, their computed F-ratio was 1.47 which was also not significant. As to the gender, the obtained chi-square value of the ASC and VAC respondents were 0.0019 and 1.87, which were not significant. Relationship between admission test results and types of elementary school graduated from obtained T-test value of 0.11 and 1.88 for ASC and VAC respondents, respectively, showing relations that were not significant.

V. Relationship between Mathematical Performance and Admission Test Results of the Respondents

Relationship between the mathematical performance and admission test results of the ASC respondents obtained test statistic value of 2.14 which was significant, while the VAC respondents got a computed test statistics value of 7.36 classified as significant. This means that there was a significant relationship between the mathematical performance and the admission test results of the ASC and VAC respondents. The same result was given by Pico and Lupdag (2000) in their study about the college admission test as predictors of academic performance.

VI. Difference in Mathematical Performance between the ASC and VAC Respondents

The mean grades between the two were 29.42 (G) and 25.15 (G), respectively. The obtained F-ratio was 13.68 which indicated that the difference was significantly higher than those of the VAC respondents even if the overall mean grades difference was small in value because the results was influenced by the population of each variable.

VII. Difference in Admission Test Results between the ASC and VAC Respondents

As shown in table 2, the mean scores of ASC and VAC students were 38.04 (S) and 32.13 (S), respectively. The obtained F-ratio was 29.65, which implied that the difference was significant. This clarified a better performance of the ASC respondents in the admission test

than the VAC respondents. Again, the population mean of each variable, which made the difference highly significant,

influenced score difference.

Table 7. Difference in admission test results between the ASC and VAC respondents

Variable	Mean	Descriptive Rating	F-ratio	Remarks
ASC Respondents	38.04	Satisfactory (S)	29.65	Significant
VAC Respondents	32.13	Satisfactory (S)		

Significant at 0.05 levels

VI CONCLUSIONS

Based on the study, the following conclusions were drawn.

- 1.) The mean age of ASC was 12.96 while the mean age of the VAC was 12.80. The modal age of both groups was 13. The females had an equal number with the ASC males while the VAC females outnumbered the males. Public elementary school graduates dominated the private elementary school graduates in VAC programs and private elementary school graduates were greater than the public elementary school graduates in ASC program.
- 2.) The Mathematics mean grade of the ASC and the VAC students were Good (G). Also, both groups admission mean scores were classified as Satisfactory (S).
- 3.) Relationship between the mathematical performance and the age, gender, and types of elementary school graduated from of the ASC and VAC respondents were not significant.
- 4.) Relationship between the admission test results and the age, gender, and types of elementary school graduated from of the ASC and VAC respondents were not significant.
- 5.) Relationship between the mathematical performance and the admission test results of the respondents was significant.
- 6.) Difference in mathematical performance between ASC and VAC respondents was significant.
- 7.) Difference in admission test results between ASC and VAC respondents was significant.

RECOMMENDATIONS

In reference to the foregoing summary of findings and conclusions, the following recommendations are hereby provided:

- 1.) Different approaches such as cooperative learning, making topics practical and workable, and student's perceptions towards Mathematics should be taken into considerations in teaching Math to ASC and VAC respondents to enhance their mathematical abilities and become very satisfactory in Mathematics.
- 2.) Elementary teacher should provide deeper concepts to prepare grade six students for the different school admission test.
- 3.) A similar study should be conducted that will trail the Mathematics learning process of the respondents from first year to fourth year high school.
- 4.) Further study should be conducted to include factors, which are not considered in this study.

BIBLIOGRAPHY

Books

- [1] Berger, K.S. (2009). *The Developing Person through Childhood and Adolescence*. New York City. Worth Publisher. Inc.
- [2] Best, J. N. (1981). *Research in Education* (4th ed.). New Jersey: Prentice-Hall. Inc. 106.
- [3] Collins, J. (1991). *Introduction to the Foundations of American Education* (18th ed.). New York: A Division of Simon & Schuster. Inc. 28.

- [4] Gutierrez, D. S. (2009). *Assessment of Learning Outcomes (Cognitive Domain)*. Keruso Publishing House Malabon, Metro Manila. 138.
- [5] Rao, V. K. and Reddy, R. S. (2005). *The Teacher and Testing Techniques*. New Delhi: Commonwealth Publisher.
- [6] Sox, G. T. (1979). *Foundation of Educational Research*. Englewood Cliffs, N. S. Prentice–Hall. Inc. 18.
- [16] Seras, R. I. (2009). Why Do Some Learners Find Math Hard? *The Modern Teacher*, 58(4).
- [17] Tan, M. L. (2006). More on TIMSS. Pinoy Kasi. *Philippine Daily Inquirer*. p. A13
- [18] Sugiarti, T., Hutama, F., Devi, K., Mahmudi, K., & Wardoyo, A. (2018). PMR Application to increase Activity and Results of Learning about Reduction Additive Fractions in Elementary School. *International Journal Of English Literature And Social Sciences*, 3(6), 1142-1146. doi: 10.22161/ijejs.3.6.28

Articles and Journals

- [7] Alabastro, F. (2004) S & T: Building Rocks of the Realistic National Innovation System for the Philippines. *Science and Technology Post*, 22, 2nd Quarter
- [8] Canonizado, I. C. (2009). Why Do Some Pupils Find Math Hard? *The Modern Teacher*, 58(4).
- [9] Downey, D. B., and Vogt Yuan, H.S. (2005). Sex Differences in School Performance during High School Puzzling Pattern and Possible Explanation. *Science Daily*, 46(2). 299-321.
- [10] Fabella, A. V. (1995). Keynote Address: Educational Assessment in the Asia-Pacific Region. Issues and Problems. *Philippine Journal of Educational Management*, 6.
- [11] Jubelag, O. D. (2009). Effects of the Four Basic Operations on the Academic Achievements of Pupils in Mathematics. *The Modern Teacher*, 5(4). 143.
- [12] Myeong, J. and Crawley, F. E. (2006). Predicting and Understanding Korean High School Students Science-Track Choice: Testing the Theory of Reasoned Action by Structural Equation Modeling. *Journal of Research in Science and Technology*, 30(4), 381-400.
- [13] Petero N. J., Tangingco P. J., and De Ocampo, E. (2006). Academic Performance of Freshman College Students of the Institute of Arts and Science in Relation to their Admission Test Scores in the College Admission Test, *Tarlac College of Agriculture Research journal*, 14(1655 - 4906). 101 – 107.
- [14] Pico, E. J., and Lupdag, A. D. (2000). College Admission Test as Predictors of Academic Performance of Common First Year Students at Central Luzon State University. *The Journal of Graduates Studies*, 3(1). 73-80.
- [15] Poster, J. I. (1999). The Developmental and Structure of the College Entrance Test: Preliminary Proper Paper Read as the FAPE – Sponsored Seminar on

Admission, Scholarship. *Guidance and Testing Center*.

Unpublished Materials

- [19] Buqueron, S. S. (2006). *Qualifying Performance in the Entrance Examination of Regional Science High School Region III vis-à-vis Academic Achievement in Science*. (Masters Thesis, Columbian College Graduate School, Olongapo city)
- [20] David, A.G. (2007). *The Mathematics Performance Of PAC College Freshmen as Influence by Different Factors*. (Masters’ Thesis, Pampanga Agricultural College, Magalang, Pampanga.)
- [21] Gomez, B. G. (2010). *Predictors of Mathematics Ability of Fourth Year High School Students in Mabalacat, Pampanga*. (Masters’ Thesis, Pampanga Agricultural College, Magalang, Pampanga.)
- [22] Guzman, E. S. (2004). *Difficulties Encountered by Freshman Students in College Algebra at Pampanga Agricultural College Magalang*. (Masters’ Thesis, Pampanga Agricultural College, Magalang, Pampanga.)
- [23] Manlapig, L. C. (2001). *Problems Encountered and remedial measures Undertaken among Freshman High School Mathematics Low Achievers at HAU Year 2000-2001*. (Masters’ Thesis, Pampanga Agricultural College, Magalang, Pampanga.)
- [24] Pico, E. J. (1999). *College Admission Test as Predictors of Academic Performance of Common First Year Student at Central Luzon State University, S.Y. 1998-1999*. (Masters’ Thesis, Central Luzon State University, Munoz, Nueva Ecija)

Internet Resources

- [25] Belle, M (2011). Academic Performance as defined. Retrieved January 29, 2011, from <http://www.ehow.com>
- [26] Burgess, B. Jr. (2011). Academic Probation and Suspension: Impact Study of Retention Policy. Retrieved February 20, 2011, from <http://www.okhighered.org/studies-reports/retentionrp-6200.pdf>
- [27] Encyclopedia Britannica. Definition of Mathematics. Retrieved January 29, 2011, from www.en.wikipedia.org
- [28] Laboratory School as defined. Retrieved February 08, 2011, from www.wikipedia.com
- [29] Linberg, S., Ellis, A., Williams, C., and Linn, M. (2008) No Gender Difference in Math Performance. Science Daily. Retrieved February 08, 2011 from <http://www.sciencedaily.com/releases/2008/07/080724192258.htm>
- [30] Medina, R. P. (2005). The Mathematics Readiness of Students in Taking General College Physics I at Negros Oriental State University. Retrieved March 02, 2011, from <http://physics.msiit.edu.ph/spum/papers/>