THE RELATIONSHIP BETWEEN THE ACADEMIC PERFORMANCE AND THE NATIONAL ACHIEVEMENT TEST PERFORMANCE OF THE SOPHOMORE HIGH SCHOOL STUDENTS OF RIZAL TECHNOLOGICAL UNIVERSITY, PHILIPPINES

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ABSTRACT

This study identified the relationship between the academic performance and the National AchievementTest (NAT) performance of the sophomore high school students of the Philippine Laboratory High School.

The NAT performance of the respondents was taken from the National Educational Testing and Research Center (NETRC) while the variables particularly the academic performance (Grades in English, Mathematics and Science) were obtained from the school records such as permanent record (form 137-A) and report card (form-138).

The results of this paper suggest that Science curriculum in the Philippines should be enhanced. It is encouraged to provide advanced lessons in order to obtain mastery in the NAT regardless of gender. Higher standards in the Classroom should be set especially in Science classes. This is to identify students who need further remediation and to really obtain a passing rate in the NAT.

Students are actually categorized into sections based on their grade point average from their previous year. Lower sections should be taught with deserving teachers who specialized in the subject. Meaningful lessons shall be made appropriate for their learning abilities so that performance in Science will be enhanced.

Keywords: Academic Performance, National Achievement test, Achievement,Performance

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Introduction

Academic Performance refers to how well a student is accomplishing his or her tasks and studies. And as a success indicator, it has been always a great issue in the field of education. Schools are being assessed based on the academic performance of the students of their students. In the public and private secondary schools in the Philippines, schools are being assessed based from the National Achievement Test (NAT) performance annually. It is then, in the desire of the schools to excel above other schools, that the schools should conform its curriculum set by the Department of Education (DepEd) to contently update and surely have their students passed the achievement test.

In the study conducted by Lopez, et al (2009), the syllabus of the science and mathematics subject of the Rizal technological University-Laboratory High School or RTU-LHS, (a Philippine Laboratory School) are in line with the desired learning competencies set by the department of education and as a result, the RTU-LHS has been consistently one of the top five secondary schools in the City (RTU Annual Report, 2009). However, with such achievement, still the over-all performances in the major subjects such as math and science were still below the standard percentage of 75 percent (mastery of the subject).

It is then that the researchers would like to study some possible indicators of the NAT performance and to identify relationship to theseindicators. This study also aimed to develop a regression model which will be significant in predicting the national achievement test performance of the respondents. Studies on testing its differences among variables were also made.

The academic performance which is determined by the respondents' grade point average is one of the criteria to be considered in the laboratory high school admission policy. This suggests that academic performance of the students is treated as one of the indicators of which a student may perform in the future. Tangent to this context is that the academic performance may be then also anindicator of how well these students performin their NAT.

Independent Variable *Dependent Variable*

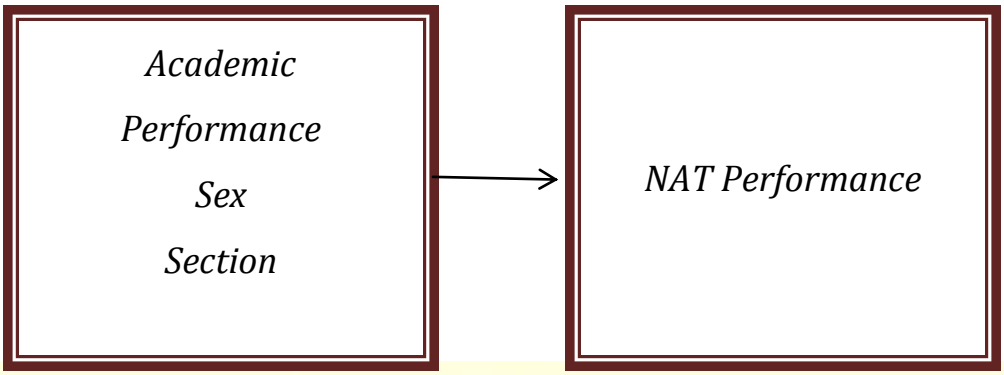

Figure 1

Research Paradigm

Also as shown in Figure 1, sex and section may also affect NAT performance as numerous studies revealed (Lemlee, 2003; Cabrillas, 2008; Bell, 2011). Differences among sex and section were determined in order to identify subjects which are in need of further instruction or reinforcement as pointed out by Lemlee (2003) and Porter (1983) that such information will aid the teachers in making instructional decisions and information to students that will enhance their motivation to learn and for educational administrators to support the necessary evaluations of programs.

Materials and Methods

This research made used of the descriptive method. A descriptive study describes and interprets what is. It is concerned with conditions or relationship that exist, processes that are going on or trends that are developing. (Best and Kahn, 2003). Since the present study deals with conditions or relationship that exists between the academic performance and the NAT Performance, the descriptive method of research is the most appropriate method to use.

The respondents of this study were all second year high school students of the Laboratory High School. One hundred forty-two students were obtained which represents the whole population of the second year. They were divided into four sections.

The data on National Achievement Test has been obtained from the result released by the National Education Testing Research Council or NETRC. The academic performance and other demographic profile have been obtained from the class advisers' permanent record (Form-137).

Frequency counts and frequency percentage were used to determine the number of respondents and proportion belonging to a certain class. Pearson r was used to determine the strength of relationship between the students' academic performance and the national achievement test. T test and ANOVA were used to determine significant relationships and differences between any of the aforecited variables.

The following descriptive rating for the academic performance will be followed (Garvida, 2012)

Academic Performance	Grades
Very High	90 and above
High	85 - 89
Average	80 - 84
Low	75 - 79
Very low	75 and below

The following proficiency level descriptive equivalent were used for the National Achievement Test Performance (NETRC, 2012)

NAT Performance Level	Percentage
Advanced	91% and above
Proficient	86% - 90%
Approaching Proficiency	81% - 85%
Basic	75% - 80%
Pre-basic	74% and below

Results

Table 1

Profile of the Respondents in Terms of Sex

Sex	Frequency	Percentage
Male	47	33.1%
Female	95	66.9%
Total	**142**	**100%**

Table 1 shows that most of the respondents are female with a frequency of 95 or 66.9% while 47 or 33.1% are males.

Table 2

Profile of the Respondents in Terms of Section

Section	Frequency	Percentage
A	37	26.06%
B	37	26.06%
C	37	26.06%
D	31	21.83%
Total	**142**	**100%**

In terms of section, sections A, B and C have the same number of students with 37 or 26.06% while 31 or 21.83% are in section D.

Table 3

Profile of the Respondents in Terms of Academic Performance in English

Academic Performance (English)	Frequency	Percentage
Very High	**25**	**17.6%**
High	**71**	**50.0%**
Average	**40**	**28.2%**
Low	**6**	**4.2%**

Very Low	**0**	**0%**
Total	**142**	**100%**

Data shows that 71 or 50.0% respondents posted a high academic performance in English subject. 40 or 28.2% have average performance, 25 or 17.6 have very high performance, 6 or 4.2% are low while none has very low.

The foregoing findings indicate that the respondents generally have commendable performance in English. These findings can be attributed from the strict implementation of the department's admission policy. It can be noted that students admitted in the Laboratory High School are those who qualified not only from the high cut-off entrance exam results but the interview of faculty which assess students' proficiency in communication skills.

Table 4

Profile of the Respondents in Terms of Academic Performance in Math

Academic Performance (Math)	Frequency	Percentage
Very High	**14**	**9.9%**
High	**41**	**28.9%**
Average	**66**	**46.5%**
Low	**20**	**14.1%**
Very Low	**1**	**0.7%**
Total	**142**	**100%**

Going over Table 4, it can be noted that 66 or 46.5% of the respondents have an average academic performance in Math, 41 or 28.9% of the respondents are high and 14 or 9.9% are very high. However, 20 or 14.1% have low academic performance and 1 or 0.7% found to be very low.

The foregoing findings point out that most of the respondents have more or less average performance however; there are still some students who have below average performance. Students of this level shall be given much more attention.

Table 5

Profile of the Respondents in Terms of Academic Performance in Science

Academic Performance (Science)	Frequency	Percentage
Very High	**1**	**0.7%**
High	**59**	**41.5%**
Average	**64**	**45.5%**
Low	**18**	**12.7%**
Very Low	**0**	**0%**
Total	**142**	**100%**

Going over Table 5, it can be noted that 64 or 45.5% of the respondents have an average academic performance in science, 59 or 41.5% of the respondents are high and 1 or 0.7% are very high. However, 18 or 12.7% have low academic performance.

The foregoing findings point out that most of the respondents have also average and up however, there are also some students like in mathematics who have found to have below average performance. This further indicates that students are likely to fail in this subject (also in mathematics).

Table 6

Profile of the Respondents in Terms of overall Academic Performance

Academic Performance	Frequency	Percentage
Very High	**9**	**6.34%**
High	**61**	**42.96%**
Average	**64**	**45.07%**
Low	**8**	**5.63%**
Very Low	**0**	**0%**
Total	**142**	**100%**

Close scrutiny of tabular data reveals that 64 or 45.07% of the respondents have an average performance in the three academic subjects, 61 or 42.96% have high academic

performance and 9 or 6.34% have very high performance. However, there are 8 or 5.63% remaining students who have below average performance as a whole.

The more or less average performance of the most of the respondents indicates that they are generally acquiring the expected grades in each three academic subjects. This is true as per retention policy of the Laboratory High School (RTU Student Handbook, 2007) that students shall have to maintain at least 80% and above.

Table 7

Performance of the Respondents in Terms of National Achievement Test in English

NAT Performance (English)	Frequency	Percentage
Advanced	16	**11.27%**
Proficient	55	**38.73%**
Approaching Proficiency	40	**28.17%**
Basic	27	**19.01%**
Pre-basic	4	**2.82%**
Total	**142**	**100%**

Going over Table 7, 55 or 38.73% of the respondents are proficient, 40 or 28.17% are approaching proficiency followed by Basic performance with a frequency of 27 or 19.01%, 16 or 11.27% are advanced and 4 or 2.82% are on pre-basic.

These indicate that there are still some students who failed in the NAT English. Thus, a teacher in English should give more emphasis to these students who are in the pre-basic performance

Table 8

Performance of the Respondents in Terms of National Achievement Test in Math

NAT Performance (Math)	Frequency	Percentage
Advanced	4	**2.82%**
Proficient	17	**11.97%**
Approaching Proficiency	37	**26.06%**
Basic	49	**34.51%**
Pre-basic	**35**	**24.65%**
Total	**142**	**100%**

Going over Table 8, 49 or 34.51% of the respondents are under Basic, 37 or 26.06% are approaching proficiency followed by pre-basic performance with a frequency of 35 or 24.65%, 17 or 11.97% are proficient and 4 or 2.82% are advanced.

These indicate that there should be more interventions to be made in the realm of Math as it can be inferred from the almost one-fourth of the respondents falling under pre-basic.

Table 9

Performance of the Respondents in Terms of National Achievement Test in Science

NAT Performance (Science)	Frequency	Percentage
Advanced	0	**0%**
Proficient	4	**2.82%**
Approaching Proficiency	3	**2.11%**
Basic	61	**42.96%**
Pre-basic	74	**52.11%**
Total	**142**	**100%**

Running parallel from the foregoing findings, Table 9 displays the NAT in science which has been noted to have 74 or 52.11% falls under pre-basic followed by basic with a frequency of 61 or 42.96%. 3 or 2.11% are closer to proficiency and 4 or 2.82 are proficient.

An enormous review in the area of science shall be made as it is alarming that more than half of the respondents are under the pre-basic. This is still in consonance with the findings of the Department of Education that science in general has seen major deterioration. A syllabus or curriculum review, materials and the likes shall be considered to attain a commendable performance in this area. Furthermore, the teaching of science shall also be evaluated, that is, the curriculum might be in line but it may not be discussed thoroughly.

Table 10

Overall Performance of the Respondents in Terms of National Achievement Test *

NAT Performance	Frequency	Percentage
Advanced	0	**0%**
Proficient	8	**5.63%**
Approaching Proficiency	42	**29.58%**
Basic	80	**56.34%**
Pre-basic	12	**8.45%**
Total	**142**	**100%**

*** Average from the three core subjects (English, math and science)**

Table 10 shows that 80 or 56.34% are under Basic, 42 or 29.58% are approaching proficiency, 12 or 8.45% are pre-basic and 8 or 5.63% are proficient and none are advanced. This finding indicates that the respondents achieved only up to the basic level as reflected from the tabular data which more than half of the students falls under it. To achieve a commendable performance as a whole in the NAT, a more progressive and advanced lessons shall be given to students especially in the area of science and so with mathematics.

Table 11

Relationship between Academic Performance and NAT Performance

Academic Performance vs. National Achievement Test Performance	Pearson's r	Verbal Interpretation	TV	Decision	Remarks
English	0.51	Moderate	7.01	Reject H_0	Significant
Mathematics	0.73	High	12.63	Reject H_0	Significant
Science	0.46	Low	6.13	Reject H_0	Significant
Over-all	**0.68**	**High**	**10.89**	**Reject H_0**	**Significant**

A perusal of table 11 reveals moderate degree of correlation between academic performance in English and English NAT performance. ($r = 0.51$) . This degree of correlation was found to be significant since the obtained t value of 7.01 is greater than the tabular t value of 1.96 at alpha 0.05. High correlation in academic performance in math and math NAT performance was also observed ($r = 0.73$) which is also found to be significant as inferred from the recorded t value of 12.63 which is outside the critical area for the acceptance of the null hypothesis at 5% level of risk.

Running counter to the foregoing findings, a low magnitude of association is noted between student's academic performance in science and science NAT performance ($r = 0.46$). Nonetheless, the said magnitude of relationship is found to be statistically significant as inferred from the recorded t value of 6.13 which is higher than from the tabular t value of 1.96 at alpha 0.05.

Overall, the degree of correlation between academic performance from the three subjects and their NAT performance is high, as indicated by the recorded r of 0.68. Inasmuch as its corresponding t value of 10.89 was higher than the tabular value of 1.96 at alpha 0.05, the conjecture of no significant correlation is rejected.

Finding clearly shows that the two variables have significant relationship. This means that the NAT performance can be predicted on the basis of their academic performance.

Table 12

A Regression Model between Academic Performance and NAT Performance

NAT Performance	Regression Model	Sample Prediction (Given an assumed academic performance) 75	85	95
English	$y = 0.81 + 0.76x$	81	85	88
Mathematics	$y = 0.41 + 0.64x$	76	80	82
Science	$y = 0.49 + 0.52$x	73	75	78

Scrutiny of the above table shows the regression equation in the realm of English $y = 0.81 + 0.76x, y = 0.41 + 0.64x$ for mathematics and $y = 0.49 + 0.52$ for science. In the sample computation of such model shows the simple prediction of NAT performance based on the assumed grade of 75, 85 and 95. If a student will get only a grade of 75 in each of the subject, it will likely to obtained a grade of 76, 81 and 73 in Math, English and Science respectively. This means that a student who obtain a grade of 75 in Science will likely to fail in his NAT performance, thus in the area of science, a science teacher must give emphasis to students with a grade of 75 and below. A student with a grade of 85 in each of the subject will likely to have a grade of 85, 80 and 75 in English, math and science NAT performance respectively and a grade of 95 however will yield to a grade of 88, 82 and 78 in English, math and science NAT performance respectively.

Further examination of the tabular data reveals that English and Math academic performance are more reliable predictors of NAT performance as it can be seen from the sample computation on the tabular data compared to science, as inferred from having a low correlation, e.g. a grade of 95 in science will likely to give only a grade of 78 in the NAT. This difference might be due to some other factors such as the parallelism of the content being assessed and taught. That is, a review of the syllabus is necessary. Although as cited by Lopezet.al., (2009) that the RTU-LHS syllabus in science is in line with the competencies set by the Department of Education, the researchers suggest that it may really not be enough that it is in line with those competencies, it should be more advanced instead.

Table 13

Difference between the National Achievement Test Performance in terms of the Variables

Variables	Computed Value	Tabulated Value	Decision	Remarks
Sex	0.695	3.84	Accept H_0	Not Significant
Sections	19.31	2.60	Reject H_0	Significant
Academic Performance	160.35	2.37	Reject H_0	Significant

Table 13 displays the results of the analysis of variance on the National achievement test between variables such as sex, section and academic performance.

Sections and academic performance are noted to have a significant difference in the NAT performance. Lending statistical support to this finding is the obtained value of F of 19.31 and 160.35 respectively, which is outside the critical region for the acceptance of the null hypothesis at alpha 0.05. (Tabular F is 2.6 and 2.37, respectively). This means that the National Achievement Tests are heterogeneous in terms of sections and academic performance.

Running counter to the foregoing findings, a no significant difference was found on the NAT performance of the respondents in terms of sex. This finding is substantiated by the obtained value of F of 0.695 which is lesser than the tabular F value of 3.84 at alpha 0.05. Accordingly, the null hypothesis is accepted.

The non-rejection of the aforesaid hypothesis indicates that the respondents are homogenous as far as their NAT performance in the realm of sex is concerned. Regardless of sex, it is noted that they have the same performance.

Discussions

Academic performance which was determined by the grade point average given by the teachers in class was noted to be high in English subject while average for both Mathematics and Science. And as a whole, these students have average academic performance. This therefore implies that, most likely that the students passed these subjects and were able to meet the standards set by the teachers. However, based from the NAT results, students have only

Basic (75%-80%) performance in Mathematics and Pre-basic (74% or below) performance in Science despite being average from the academic performance. Nevertheless, students in the English NAT were proficient (86%-90%). Thus, as a whole Basic performance in the three subjects was noted in their NAT. Based on these findings, English and Mathematics academic performance is a reliable predictor of the English and Mathematics NAT performance but not in Science. Science therefore has to be taught more rigorously and with understanding.

No significant difference was found among males and females in terms of their NAT performance. It only means that regardless of sex, performance in the NAT are the same.Running counter to the foregoing finding, marked differences were noted in the NAT performance when grouped according to sections, thus, those that are in the lower sections should be given much attention as per instruction is concerned. In like manner, marked variations were noted on the NAT performance of the respondents when grouped according to the level of academic performance, thus those who falls below average in the academic performance should be given much attention.

The researchers recommend that Science curriculum in the Philippines should be taught with advanced lessons and those who only obtain below 85 should be given further instructions. A syllabus review on the Science curriculum should be made (although as revealed by Lopez, et.al,2009 that curriculum in the Laboratory high School are in line with the competencies set by the Department of Education), so as to determine (if there is any) mismatch between what was thought and assessed. The best teachers should be assigned to lower sections so as to give opportunity for the students to learn advance lessons.

The researchers also recognizes the Philippine government efforts of providing quality education to all Filipinos as manifested by progressive change in both elementary and secondary curriculum which was already implemented two years ago. This is known as the Enhanced Basic Education Curriculum otherwise known as the K-12 program. The researchers hoped that a valid, reliable and relevant way of national assessment should be conducted as to really serve its purpose.

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