

# Performance of BSEd Science Graduates in Licensure Examination for Teachers: Basis for a Regression Model

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**Abstract** - The study determined predictors of LET performance of BSEd Science graduates of the four state universities in Region I in the September 2013 Licensure Examination for Teachers using descriptive-correlation method and documentary analysis. It found that graduates were young, dominated by female with high school average grade of 88.731, college entrance average percentage score of 59.1%, and majority attended review classes. The overall academic performance was 1.995 while the overall LET performance was 77.59. Majority passed the LET.

Gender, high school average grade, college entrance score, attendance to review class and academic performance significantly predict LET performance. The regression model equation is  $Y = 0.153a + 0.257b - 10.767c + 1.105d - 5.459e + 75.976$  with a margin of error of  $\pm 4.26$  where  $Y$  is LET rating; the constant is 75.976;  $a$  is college entrance test score; and  $b, c, d, e$  are averages in high school, general education, professional education, and major, respectively. Thus, in the event that male and female applicants are tied along admission requirements, males be given due consideration. Universities need to intensify admission requirements and retention policies. School administrators must provide their graduates with review classes. Faculty members should prepare examinations based on the LET examination format.

**Keywords:** board examination, science education, academic performance,

## INTRODUCTION

Abad [1] noted that the education of the youth is the foundation of every state. The failure of education represents the failure of the society – its inability to prepare its young for their inevitable ascendancy into leadership roles in the future and to properly perpetuate itself through the succeeding generations.

One particular concern in our Philippine educational system is science education. Batomalaque [2] reiterated that Science is important because of its links to technology and industry which are areas with high priority for development. Science is included as a core element in elementary and secondary levels despite conceptual complexity and high cost of implementation. Its inclusion in the curricula is mandated in the 1987 Philippine Constitution that all citizens need to achieve a degree of scientific literacy to enable them to participate effectively as citizens in modern societies.

Studies, however, indicated that many of our Filipino students are not attaining functional science

literacy, without which they find it too difficult to meet the challenges posed by the rapidly changing world. One of the factors found to account for their low performance in science is teacher training [2].

Cabrera [3] reported that based on an evaluation conducted on the eight ASEAN countries by the World Economic Forum, the Philippines ranked 8<sup>th</sup> in terms of the quality of science and mathematics education with a score of 3.1. Singapore ranked first with a score of 6.4. This is backed up by the results of licensure examinations from the Professional Regulation Commission (PRC) indicating that the quality of the country's human capital has been deteriorating, particularly when compared to our ASEAN neighbors. Indeed, the education sector must receive top and urgent priority in the development agenda of our country.

Republic Act 7836 [4] made the practice of teaching the 40<sup>th</sup> profession under the regulation of the PRC which elevated teaching to the same status as that of the other professions. It professionalized teaching by requiring teachers to have a license for

employment by passing the Licensure Examination for Teachers (LET).

However, teacher qualifications in the sciences remained to be an issue not just in the tertiary level but even at the secondary education level in terms of content and pedagogy. In Biology, Chemistry and Physics, only 44%, 34% and 27% are majors in these respective subject areas. The other teachers are science generalists. Trainings were undertaken for non-major teachers as remedial measure but what is more disturbing is that the level and quality of subject competency is still wanting even for teachers who are specialists in these subject areas [5].

Based on the experience of the UP-Institute of Science and Mathematics Education (UP-ISMED), training of teachers is not the problem as there has been a lot of trainings but the non-implementation and the tendency of teachers to go back to their usual practice and for other many reasons [6]. Science education is at an embarrassing state. Colleges and universities must realistically look at it and see what can be done to improve science courses since these are necessary tools for further continuing education and for development [7].

Preservice education of teachers is a key to achieving sustainable quality Basic Education. Since the Department of Education (DepEd) has the biggest stakes in teachers' preservice program, it should demand for more rigorous classroom-based training for future teachers from the CHED-TEI [8]. One indicator of quality education is the graduates' performance in the national achievement examinations. In the case of teacher training institutions, the indicator is passing the Licensure Examination for Teachers. Preservice science teachers' success in the LET indicate that they have gained enough and comprehensive knowledge on the subject. It certifies their readiness for the professional world [9].

The researchers firmly believe that a teacher does not have a place in the teaching profession if he cannot pass the LET. A popular dictum says that you cannot give what you do not have and you cannot teach what you do not know.

#### OBJECTIVES OF THE STUDY

The study aimed to determine the LET performance of BSEd Science graduates of the four state universities in Region I during the academic year 2012-2013 in the Licensure Examination for Teachers

as a basis for a regression model. It specifically looked into the profile of BSEd Science graduates during the academic year 2012-2013 in terms of age, gender, high school average grade, college entrance test score, and attendance to review class; the academic performance of the BSEd Science graduates in General Education, Professional Education and Major; the LET performance of the BSEd Science graduates in General Education, Professional Education and Major; the relationships between the BSEd Science graduates' LET performance and the profile variables; the relationship between the BSEd Science graduates' LET performance and academic performance; and the regression model to predict BSEd Science graduates' LET performance.

#### METHODS

##### Research Design

The study used the descriptive-correlation method of research in determining the LET performance of BSEd Science graduates during the AY 2012-2013 in the four State Universities in Region I. Documentary analysis was employed in processing the BSEd Science graduates' data obtained from the Office of the Registrar of each school and the Office of the PRC.

##### Subjects of the Study

The researcher conducted the study in the College of Teacher Education of the four state universities in Region I namely Don Mariano Marcos Memorial State University (DMMMSU), Agoo, La Union; Mariano Marcos State University (MMSU), Laoag City, Ilocos Norte; Pangasinan State University (PSU), Bayambang, Pangasinan; and University of Northern Philippines (UNP), Vigan City, Ilocos Sur.

**Table 1.** Distribution of BSEd Science Graduates by University (N=133)

University	f
1. Don Mariano Marcos Memorial State University (DMMMSU)	32
2. Mariano Marcos State University (MMSU)	27
3. Pangasinan State University (PSU)	53
4. University of Northern Philippines (UNP)	21

A complete enumeration of the 133 BSEd Science graduates of AY 2012-2013 who took the Licensure Examination for Teachers on September 29, 2013 was used in the study. Their names were obtained from the Office of the Registrar of their respective school campus and their number was determined based on

the names that appeared from the LET result obtained from the office of the PRC. Table 1 shows how this number is distributed by university.

**Instrument**

Student data sheets, a summary sheet and a reference table for determining ages as of October 1, 2013 were used in the study.

**Procedure**

The researcher sought permission from the Office of the University President of each university to give the researcher access on the school records of BSEd Science graduates of AY 2012-2013. The researcher also prepared four letters to the Professional Regulation Commission signed by the presidents of their respective universities, requesting for a copy of the September 2013 LET result of BSEd examinees.

**Data Analysis**

To determine the profile, academic performance and LET performance of BSEd Science graduates – frequency counts, percentages, mean, standard deviation and average weighted mean (AWM) were used. Pearson product-moment correlation coefficients and chi-square were used to determine relationships between LET performances with the profile variables and academic performance. The probability value was used to determine which of the different variables significantly predict LET performance at 0.05 level of significance. The Statistical Package for Social Sciences (SPSS) version 20 was used to facilitate computation and formulation of the regression model.

The data are presented into six topics regarding BSEd Science graduates, namely: profile, academic performance, LET performance, relationship between LET performance and profile variables, relationship between LET performance and academic performance, and the regression model.

**Profile of BSEd Science Graduates**

Table 2 presents a summary of the profile of the BSEd Science graduates in Region I by university and overall. It can be gleaned that the BSEd Science graduates were young with a mean age of 21.33. DMMMSU had the highest mean age of 21.66 years and UNP had the lowest mean age of 21.02 years. In terms of gender, 78% of the graduates were female where DMMMSU had the highest female percentage of 84.4% and MMSU had the lowest with 74.1% female graduates.

The mean for high school average grade was 88.731 with a standard deviation of 3.156. PSU had the highest mean grade of 90.057 with a standard deviation of 2.113 while UNP had the lowest mean rating of 86.915 with a standard deviation of 3.692.

For college entrance test score, the overall mean percentage score was 59.10 with a standard deviation of 7.15. Graduates from MMSU had the highest mean score of 63.40 and standard deviation of 7.95 while PSU had the lowest mean score of 55.91 with a standard deviation of 4.36.

For attendance to review class, 76.3% attended review class with MMSU having the greatest percentage of attendance which is 92.6% and the least was DMMMSU with only 11.1%.

**RESULTS AND DISCUSSION**

**Table 2.** Profile of BSEd Science Graduates

Students' Variables University	Age	Gender		HS Ave.		CET Score		Attended Review	
		F(%)	M(%)	Mean	SD	Mean	SD	Yes(%)	No(%)
DMMMSU	21.66	84.4	15.6	86.915	3.692	61.36	9.86	11.1	88.9
MMSU	21.09	74.1	25.9	88.578	2.967	63.40	7.95	92.6	7.4
PSU	21.38	75.5	24.5	90.057	2.113	55.91	4.36	90.0	10.0
UNP	21.02	81.0	19.0	88.427	3.399	59.05	2.87	57.1	42.9
<b>Overall</b>	<b>21.33</b>	<b>78.0</b>	<b>22.0</b>	<b>88.731</b>	<b>3.156</b>	<b>59.10</b>	<b>7.15</b>	<b>76.3</b>	<b>23.7</b>

**Table 3.** Mean and Standard Deviation of Academic Performance of the BSEd Science Graduates

University	Gen Ed		Prof Ed		Major		Overall	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
DMMMSU	2.081	0.175	1.953	0.170	2.206	0.253	2.093	0.194
MMSU	1.974	0.182	1.800	0.201	1.900	0.246	1.905	0.200
PSU	1.909	0.185	1.794	0.139	2.036	0.239	1.918	0.180
UNP	2.036	0.179	1.886	0.168	1.765	0.192	1.898	0.169
<b>Overall</b>	<b>1.984</b>	<b>0.192</b>	<b>1.848</b>	<b>0.176</b>	<b>2.006</b>	<b>0.277</b>	<b>1.955</b>	<b>0.200</b>

**Table 4.** Mean and Standard Deviation of LET Performance of the BEd Science Graduates

University	Gen Ed		Prof Ed		Major		Overall		Passing
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Percentage
DMMMSU	76.00	6.380	74.28	7.226	74.41	7.890	74.68	6.593	68.8
MMSU	79.93	4.992	79.15	5.559	80.11	4.466	79.76	4.059	92.6
PSU	79.28	4.853	79.45	6.138	75.94	7.399	78.05	5.530	84.9
UNP	79.48	5.483	77.43	7.883	78.05	7.138	78.09	6.469	81.0
<b>Overall</b>	<b>78.65</b>	<b>5.532</b>	<b>77.83</b>	<b>6.854</b>	<b>76.75</b>	<b>7.212</b>	<b>77.59</b>	<b>5.915</b>	<b>82</b>

**Academic Performance of BEd Science Graduates**

A summary of academic performance for each university and overall is presented in Table 3 in terms of mean and standard deviation.

The academic performance of BEd Science graduates in General Education was 1.984 with a standard deviation of 0.192. PSU had the highest mean grade of 1.909 with a standard deviation of 0.185 while DMMMSU had the lowest mean grade of 2.081 with a standard deviation of 0.175.

For Professional Education, the mean grade was 1.848 with a standard deviation of 0.176. PSU had the highest mean grade of 1.794 with a standard deviation of 0.139. DMMMSU had the least mean grade of 1.953 with a standard deviation of 0.170.

For Major, the mean grade was 2.006 with a standard deviation of 0.277. UNP had the highest mean grade of 1.765 with a standard deviation of 0.192. The least mean grade of 2.206 with a standard deviation of 0.253 was at DMMMSU.

Overall, the grade weighted average of the BEd Science graduates was 1.955 with a standard deviation of 0.200. UNP had the highest mean grade of 1.898 with a standard deviation of 0.169. DMMMSU was the lowest with a mean grade of 2.093 and standard deviation of 0.194.

Table 4 presents a summary of LET performance of each university and overall in terms of mean, standard deviation and passing percentage. The BEd Science graduates mean rating in the LET for General Education was 78.65 with a standard deviation of 5.532. MMSU had the highest mean rating of 79.93 with a standard deviation of 4.992. DMMMSU had the lowest mean rating of 76.00 with a standard deviation of 6.380.

For Professional Education, the mean rating was 77.83 with a standard deviation of 6.854. PSU had the highest mean rating of 79.45 with a standard deviation of 6.138. DMMMSU had the lowest mean rating of 74.28 with a standard deviation of 7.226.

The mean rating of BEd Science graduates for Major was 76.75 with a standard deviation of 7.212. MMSU had the highest mean rating of 80.11 with a standard deviation of 4.466. DMMMSU had the lowest mean rating of 74.41 with a standard deviation of 7.890.

Overall, the mean rating of BEd Science graduates in the LET was 77.59 with a standard deviation of 5.195. MMSU had the highest mean rating of 79.76 with a standard deviation of 4.059. DMMMSU had the lowest mean rating of 74.68 with a standard deviation of 6.593. In terms of passing percentage, 68.8%, 92.6%, 84.9% and 81% passed the LET from DMMMSU, MMSU, PSU and UNP, respectively. The overall LET passing percentage was 82%.

**Table 5.** Correlation of LET Performance and the Different Profile Variables.

Profile Variable	X <sup>2</sup>	p-value
Age	-0.164	0.060
Gender	14.875	0.002*
High School Average Grade	0.471	0.000*
College Entrance Test Score	0.470	0.000*
Attendance to Review Class	9.719	0.021*

\*Significant at 0.05

Table 5 presents the relationship between the LET performance of BEd Science graduates and the different profile variables in terms of Pearson correlation coefficients (r) or Pearson chi-square values (x<sup>2</sup>), with their probability values (p-value).

It can be observed from the table that age was the only variable that has a p-value higher than the 0.05 indicating no significant relationship with LET performance. Hence; gender, high school average grade, college entrance test score and attendance to review class are each significantly related to LET performance. Further, male examinees performed better than female examinees as seen from the contingency table on Table 6. Also, those who attended review class performed better than those who did not attend as revealed by the contingency table on Table 7.

**Table 6.**Contingency Table for Gender and LET Performance

Gender	Male	Female
76 Below	7	34
76-79.9	8	29
80-83.9	5	36
84 above	8	5

**Table 7.**Contingency Table for Attendance to Review Class and LET Performance

Attendance to Review Class	Attended	Did not attend
76 Below	7	34
76-79.9	8	29
80-83.9	5	36
84 above	8	5

Table 8. Correlation of LET Performance and Academic Performance.

Student Variables	r-value	p-value
1. General Education	0.613	0.000*
2. Professional Education	0.601	0.000*
3. Major	0.477	0.000*
4. Overall	0.678	0.000*

\*Significant at 0.01

Table 8 presents the relationship between the LET performance and academic performance of BSEd Science graduates in terms of Pearson correlation coefficients, with their probability values. Since all p-values are less than the 0.05, it was concluded that there is significant relationship between academic performance and LET performance in all areas namely General Education, Professional Education, Major and overall.

**Regression Model**

Gender, high school average grade, college entrance test score, attendance to review class and academic performance significantly predict LET performance. The regression line equation is:

$$Y = 0.153a + 0.257b - 10.767c + 1.105d - 5.459e + 75.976$$

with a margin of error of  $\pm 4.26$  where Y is LET rating; a is college entrance test score; and b, c, d, and e are averages in high school, general education, professional education, and major, respectively. The constant is 75.976.

**CONCLUSION**

Based on the findings of the study, the researcher formulated the following conclusions:

The BSEd Science graduates from the four state universities in Region I during the AY 2012-2013 were young and dominated by female. Their high school average grade was 88.731 which is ‘very good’ with PSU as the highest and DMMMSU as the lowest. In terms of college entrance test, their percentage scores were 9.10 steps above the 50 cut-off percentage score with MMSU as the highest and PSU as the lowest. Except for DMMMSU, majority of the graduates attended review class.

The academic performance of BSEd Science graduates in General Education was 1.984 or ‘good’ with MMSU being the highest and DMMMSU as the lowest. For Professional Education, the academic performance was 1.848 or ‘good’ with PSU as highest and DMMMSU as the lowest. Academic performance in Major was 2.006 or ‘good’. UNP was the highest while DMMMSU was the lowest. The overall academic performance was 1.955 or ‘good’. UNP was the highest while DMMMSU was the lowest.

The LET performance in General education was 78.65 or ‘fair’. MMSU was the highest while DMMMSU was the lowest. In Professional Education, the LET performance was 77.83 ‘fair’. PSU was the highest while DMMMSU was the lowest. For LET performance in Major, the rating was 76.75 or ‘fair’. MMSU was the highest while DMMMSU was the lowest. The overall LET performance was 77.59 or ‘fair’. MMSU was the highest while DMMMSU was the lowest. In terms of passing percentage, 82% or majority of the examinees passed the LET.

LET performance was significantly related to gender, high school average grade, college entrance test score, and attendance to review class. However, LET performance had no significant relationship with age.

There was significant relationship between academic performance and LET performance in all areas namely General Education, Professional Education and Major.

**RECOMMENDATION**

In the event that a male applicant and a female applicant are tied along admission requirements and other things being equal, males be given due consideration. There is a need to intensify admission requirements and be strict about retention policies. School administrators must provide their graduates with review classes to prepare them in taking the LET. Faculty members can enhance LET performance by

preparing examinations based on the LET examination format and type of test thus, increasing their exposure and chance of passing. Parallel researches must be conducted in the other subject areas. Further study on other variables that can predict LET performance must be conducted.

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