

## Intellective Determinants of Academic Performance among Pre-Service Teachers At Polytechnic University Of The Philippines

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Article Info	Abstract
<i>Article History</i>	<p><i>The increase in enrolment at Polytechnic University of the Philippines Lopez Quezon Campus particularly in the College of Education led to the competitive admission of students. The College of Education adheres to the belief that choosing Education as a profession is one big decision an adolescent could ever make for this entails an obligation (Marasigan, 2019). Because of the need to make Polytechnic University of the Philippines a center of higher standard of education in all levels, the admission for better selection of students became an important tool. This study aimed to describe the intellective determinants of the academic performance of the pre-service teachers at Polytechnic University of the Philippines during the school year 2019-2020. The researcher described the intellective profile variables of the of 42 pre-service teachers in terms of High school grade point average (GPA), Entrance Examination Result, and General Weighted Average (GWA) in the professional Subjects. Findings reveal that the pre-service teachers' intellective profile such as High School Grade Point Average (GPA) was satisfactory, while their Entrance Examination Result was fair, and that their General Weighted Average (GWA) in the professional Subjects was satisfactory. The pre-service teachers incurred an average grade in their academic performance in the practicum subjects. Significant relationship exists between the students' performance in the practicum subjects and their High school grade point average (GPA) and General Weighted Average (GWA) in the professional subjects, but no significant relationship in Entrance Examination Result. This study is designed to assist state and institutional higher education leaders interested in using high school grade point average and Entrance Examination Result to assess student readiness for college. The researcher recommended that the school administrators may consider the intellective profile variables of the students including High School Grade Point Average (GPA), Entrance Examination Result as entry requirements, and encourage the pre-service teachers to focus their performance in their practicum subjects in preparation for their work as a teacher once they graduate. Moreover, the researcher recommended to comply with the schools' policy on strict implementation among pre-service teachers their entry requirements such as their High school grade point average (GPA) and Entrance Examination Result, and consider the implications drawn from this study to assist state and institutional higher education leaders interested in using high school grade point average and Entrance Examination Result to assess student readiness for college.</i></p>
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### Introduction

Education serves several functions for society which is either both social and individual. The social function part is to help each student individual to become more effective member of society by passing along to him the collective experiences of the past and the present. On the other hand, the individual function part is to enable the students to lead a more satisfying and productive life by preparing him to handle new experience successfully.

Through their teachers, the students can accumulate knowledge. The learning experiences accumulated in school serve as their bridge to overcome life's circumstances and eventually become more effective members of the society. Basically, students encounter a lot of experiences from the time they enter college until they finish the degree.

In the Polytechnic University of the Philippines system, the quality of students' inputs is considered. This is why college entrance test or admission test is given in screening prospective applicants for admission in any college. The main goal of the test is to identify among the applicants' potentialities for the academic work.

The increase in enrolment at Polytechnic University of the Philippines Lopez Quezon Campus particularly in the College of Education led to the competitive admission of students. The College of Education adheres to the belief that choosing Education as a profession is one big decision an adolescent could ever make for this entails an obligation (Marasigan, 2019). Because of the need to make Polytechnic University of the Philippines a center of higher standard of education in all levels, the admission for better selection of students became an important tool.

Admission tests were believed to have the ability to evaluate and foretell a students' performance in subjects such as English, Mathematics, and Science. Therefore, this also has the ability to foretell the performance of a student in a specific education program. The researcher, being a teacher for so many years have observed that the students' performance in a particular subject is predicted well by their entrance examination scores. The students' scores in mathematics, science and reading broken down into separate factors are highly significant explanatory variables. These are important factors associated with the student's innate characteristics.

### **Background of the Study**

The grades a student earns for a period of learning that has been done reflects the extent of student's learning in academics. The grade is a primary indicator of such students' learning. It is undeniably proven that if a student earns higher grades it was probable that such students may also have learned a lot while low grades indicate lesser learning. However, many studies have found out that several factors maybe accounted in getting high or low grades but no single factor can be definitely pointed out as predicting grades. There are a lot of factors that can be associated to grades like age, gender, IQ, year level, study habits, parent's educational attainment, social status, number of siblings, birth order and others. Almost all of existing environmental and personal factors can predict the academic performance. These findings prompted the researcher to investigate the possible relationship of selected variables to the academic achievement of pre-service teachers from the College of Education of Polytechnic University of the Philippines Quezon campus. The investigation on this area thus becomes a real and compelling motivation for the researcher to conduct this study.

One of the flagship colleges of the Polytechnic University of the Philippines is the College of Education (CoEd). In the field of education PUP is one of the largest contributors of professionals. The university offers undergraduate courses that prepare future teachers to become competent teachers who are imbued with the needed skills and competencies to prepare the future of this country who will be enrolling in basic education. There has been a tremendous shift from its birth in 1952 when CoEd became a training ground of students for either government service or entrepreneurship, offering courses in typing, bookkeeping, stenography, and telegraphy in addition to the prescribed intermediate curriculum. For more than six decades, the CoEd, formerly College of Office Administration and Business Teacher Education (COABTE), went through a dynamic transformation and is now one of the most productive and exemplary college in the largest state university (in terms of student population) in the Philippines.

### **Theoretical Framework**

This study is anchored with the Triarchic theory developed by Sternberg (2011). This theory was proposed by Robert Sternberg. Here, Sternberg states that human intelligence is a mental activity directed toward purposive adaptation to, selection and shaping of, real-world environments relevant to one's life which means that intelligence is how well an individual deals with environmental changes throughout their lifespan.

### **Statement of the Problem**

This study aims to describe the intellectual determinants of the academic performance of the pre-service teachers at Polytechnic University of the Philippines during the school year 2019-2020.

Specifically, it seeks to answer the following questions:

1. How may the intellectual profile variables of the respondents be described in terms of:
  - 1.1 High school grade point average (GPA)
  - 1.2 Entrance Examination Result
  - 1.3 General Weighted Average (GWA) in the professional

Subjects

2. What is the students' academic performance in the practicum subject?
3. Is there a significant relationship between the students' performance in the practicum subject, and their intellectual profile variables?

#### 4. What implications can be drawn based on the findings of the study?

##### Hypothesis

The hypothesis that was tested using 0.05 level of significance was that:

H(o): There is no significant relationship between the students' performance in the practicum subject, and their intellectual profile variables.

##### Scope and Delimitation of the Study

The purpose of this study was to describe the intellectual determinants of the academic performance of the pre-service teachers at Polytechnic University of the Philippines during the school year 2019-2020. The researcher described the intellectual profile variables of 42 pre-service teachers in terms of High school grade point average (GPA), Entrance Examination Result, and General Weighted Average (GWA) in the professional Subjects. Based on the results of the study, implications were drawn to improve the offering of the BS Education program at Polytechnic University of the Philippines.

##### Studies and Literature

Performance plays an important role in all aspects of life. It is needed for the advancement of science and technology and in the improvement of life. It is the way or means to have access to a great many occupations, careers and professions. People who function effectively achieve successes in all avenues of life.

People have so many expectations on the schools' role in coping up with changes in this diversified universe. In order to maximize learning and cope adequately with environmental changes, the school has to be equipped with the most updated methods and techniques needed for the demands of the individuals

Consequently, education has geared on the individual as its focal point of interest. Recognizing man's unique quality and potential is the point of education. Something is done towards this objective when the school begins with the analysis of students in terms of personality differences, intellectual capacity, interests and socioeconomic background.

There are several factors that affect the students' academic performance. The student's potentialities and characteristics represent an important aspect of his or her achievement. Educators believed that a thorough understanding of the determinants of the students' achievement is very much needed so an adequate approach to directing a student within an educational setting is required.

Many researches have utilized intelligence and ability as determinants. There were researchers who have studied the relationship between scholastic achievement and other variables including personal characteristics and sociological determinants. Factors like sex, ability, and socioeconomic status are called basic correlates of academic achievement.

Knowledge of non-intellectual factors serves as guide not only to the school but also to its mentors in the formulation of course objectives and adoption of methods and techniques of teaching. At present, there seems to be an evident need to study the intellectual and non-intellectual factors. Although much improvement has been made in use of intellectual measures, perfect predictors of academic success have not yet been developed.

Educators are also concerned with the different factors affecting their whole learning process. Lehman-Mehrens (1973) said that "personality characteristics are, or should be of concern to classroom teachers. It is generally agreed that educators must be concerned with attitudes, values, and interests to the same degree as it is concerned with the development of cognitive skills and knowledge. What value will society acquire from individuals who can solve the quadratic equation or are able to detect the components of LSD, but who are hostile or aggressive? Education should be concerned with developing a well-rounded individual.

With much reason, the same authors argue for a certain total approach in the education of the students. According to them "This totality goes beyond academic skill and knowledge. A student's mental health has direct relevance to his ability to learn, his interest in learning, and his attitude toward the values of an education. Quite frequently, learning difficulties are related to the student's total strengths and weaknesses in both cognitive and non-cognitive areas. Whether an educator realizes or not, he is influenced by the student's attitudes, values, and in general makeup.

Biddle (1974) pointed out that poor academic performance could be more of a function of personality rather than of inadequate I.Q., poor teaching, and uncooperative environment or some other factors. He emphasized that the student with a great need for achievement avoids failure, expects success, takes risks and persists. The writer is also aware that there are tools, which can be used in order to establish the relationships of these existing factors to the academic achievement of students: Kelly stated: In his effort to attain greater control over his environment, man has sought to discern and employ relationships between observed events. The accumulation of experience has yielded not only class concepts and generalizations of a descriptive nature but also relationships, which have some useful predictive value. In statistics, these are the parallel quantitative processes of correlation and regression. These statistical processes of correlation and regression can be used in predicting academic achievement.

The non-intellective factors that may predict students' academic performance include age, sex, educational attainment of father, educational attainment of mother, parents' average income, and Sixteen personality factors. College or university admission test is one of the most anticipated activity of graduating high school students especially in the Philippines. Preparation for the college examinations are popular that the parents even pay for review centers to secure their children's chance to be accepted in a prestigious university.

In theory, all students in the Philippines can gain access to higher education if they meet the admission criteria most especially if they meet the tuition and living cost. However, admission requirements remain dependent upon individual higher education institutions (HEIs). Entrance to HEIs is dependent on the possession of a high school certificate of graduation and in some cases on the result of the National Secondary Achievement Test (NSAT) or National Career Achievement Examination (NCAE) or in many HEIs the result of their own entrance examination. Admission to public universities can be very competitive in the Philippines, in particular, at the University of the Philippines campuses, which usually accept fewer than 20% of applicants, where performance in the University of the Philippines College Admission Test (UPCAT) and the weighted average of final grades obtained in high school are required for entrance. The top-ranking applicants, based on the quota and cutoff grade set by each campus, qualify. Other universities maintain their own admissions criteria, which may include a school administered admissions test, secondary school grades, an interview, and a medical examination. Admission test scores is one significant metric in the selection of students who will be successful in their later professional career and those candidates who are able to study diligently enough to pass all the study requirements, In that sense the selection procedure at admission is selecting in the best available candidates.

On the other hand, most universities use high-school grade point average instead of the admission test scores to decide which students to accept in an attempt to find the most gifted and most dedicated students. The basic assumption is that a high school pupil with a high grade point average will achieve high grades at university.

Historically, college admission has been determined based on a rather narrow set of measures. However, actual success in college seems to be more dependent on a much wider array of skills, knowledge, attitudes, behaviors, and strategies than are currently considered for admission. Most selective colleges always look at test scores in tandem with grades, essays and other indicators of student's ability.

For the past decades some considerable research attention has focused on the examination of the relationship between entry criteria or previous exposure and the subsequent academic performance of students. This relationship has been examined from various angles and levels but the findings of the studies and conclusions on the subject of predictive validity of entry criteria on subsequent academic performance of students are inconsistent, thus making it necessary to study every situation.

### **Academic Performance of the Subjects**

In analyzing and grouping the academic performance of the subjects, the researcher used the frequency and percentage distribution. Table 3. Subjects' Academic Performance

Academic Performance	Frequency	Percentage
Above Average (88-92)	19	54
Average (83-87)	16	46
Total	35	100

Table 3 shows that majority of the subjects have above average performance during the First Semester.

This implies that the subjects did well not only in their academic subjects but in non-academics as well. Raudenbush (2005) stated in his study that grade retention has been controversial for many years, and current calls to end social promotion have lent new urgency to this issue. Since the retention policy is being implemented in the College of Teacher Education, this may be the reason why there are more above average students than average students. They became particular with the grade requirements in order to survive until the finish the degree.

### *Nonintellective factors as predictors of academic performance*

This study examined the effectiveness of using Atkinson's model, Dynamics of Cumulative Achievement, in discerning the non-intellective factors, or personality factors, which were predictive of academic performance for non-traditional adult college freshman. A selection of personality and immediate environment variables, representing various constructs in the model, were administered to 215 non-traditional adult college freshman. Six personality factors: achievement, cognitive structure, dominance, endurance, understanding, and social recognition, from Douglas N. Jackson's Personality Research Form (PRF), were used to measure the personality point of motives in Atkinson's model. Julian B. Rotter's Internal-External Locus of Control Scale (I-E LOC) was used to measure the personality point of knowledge, beliefs and conception, and the personality point of ability was measured by the total reading and vocabulary score from the California Achievement Test (CAT). A Study Time Questionnaire (STQ) was used to determine the number of credit hours taken and the number of hours used for study. Information on sex, ethnicity, age, and financial aid was included. Also, information on the

writing placement was made available. Successful students completed their first, second, and third semesters with at least a C average. Multiple regression analysis and stepwise discriminant analysis were used to analyze the data. Total grade point average, the dependent variable, was discretized into three levels: probate, average, and excel. Findings, based on 105 students who were still enrolled after three continuous semesters, partially supported the bases of the study. When variables from the PRF, the I-E LOC Scale, the CAT and the STQ were entered into the multiple regression equation, 18.11% of the variability of total grade point average was explained. Demographic variables of race, sex, and age increased the amount of explained variability to 26.52%, and the writing placement increased the amount of variability to 32.32%. The results of the stepwise multiple regression analysis and the stepwise discriminant analysis indicated that writing placement was the best indicator of total grade point average, explaining 19.62%. Recommendations were made for additional research using Atkinson's model, and for using writing placements of the non-traditional adult college freshman as an additional measure for the prediction of academic performance.

## Method

The researcher used the descriptive correlational method of research. According to Shadish (2002) a descriptive correlational method of research collects, organizes and reviews information about the matter being studied. This method was chosen since it best fits this study to describe the correlation between the students' performance in the practicum subject, and their intellectual profile variables. Furthermore, Calmorin (2011) stated that the descriptive correlational method of research identifies the relationships that exist between variables concerned served to generate answers to the hypotheses further exploration.

## Results and Discussion

### Problem 1. Respondents' Intellectual profile variables

The following tables illustrate the intellectual profile variables of the respondents.

**1.1 High School Grade Point Average (GPA).** Table 1 shows the High School Grade Point Average (GPA) of the pre-service teachers.

**Table 1. Students' High School Grade Point Average**

Grade Point Average (GPA)	f	%
90 - 100 (Outstanding)	3	7
85 - 89 (Very Satisfactory)	17	38
80 - 84 (Satisfactory)	25	56
75 - 79 (Fairly satisfactory)	0	0
75 below (Did not meet expectations)	0	0
<b>Total</b>	<b>45</b>	<b>100</b>

It was found out that there are 25 or 56 percent of the pre-service teachers have incurred a satisfactory GPA rating ranging from 80 - 84, followed by 17 or 38 percent earned a very satisfactory rating whose GPA ranges from 85 - 89, and that 3 or 7 percent of the pre-service teachers incurred an outstanding rating which ranging from 90 - 100. It can be concluded that majority of pre-service teachers had a high school grade point average of 80-84 interpreted as satisfactory. This implies that most of the subjects had satisfactory performance during their high school days.

**1.2 Entrance Examination Result.** Table 2 present the entrance examination result of the pre-service teachers.

**Table 2. Subjects' Entrance Examination Result**

Grade Point Average (GPA)	f	%
90 - 96 (Above average)	7	16
83 - 89 (Average)	16	36
75 - 82 (Fair)	22	48
<b>Total</b>	<b>45</b>	<b>100</b>

Data shows that there are 22 or 48 percent of the pre-service teachers who scored fair in the entrance examination whose rating ranges from 75 - 82, followed immediately by 16 or 36 percent earned an average rating of 83 - 89, and that 7 or 16 percent of the pre-service teachers scored above average with rating ranging

from 90 – 96. It can be concluded that majority of pre-service teachers got a rating of 83-89%. This implies that most of the subjects had average performance in the entrance examination.

An entrance examination is an examination that many schools use in selecting their students for admission. These exams are normally given once the student-applicants pass the preliminary screening.

**1.3 General Weighted Average (GWA) in the professional Subjects.** Table 3 displays the students' General Weighted Average (GWA) in the professional subjects.

**Table 3. Students' General Weighted Average (GWA) in the professional Education Subjects**

<b>General Weighted Average</b>	<b>f</b>	<b>%</b>
88 - 100 (Very satisfactory)	17	37
75 - 87 (Satisfactory)	28	63
65 – 74 (Conditional)	0	0
5.0 (Failed)	0	0
<b>Total</b>	<b>45</b>	<b>100</b>

Findings indicates that there are 28 or 63 percent of the students incurred a satisfactory grade ranging from 75 – 87, followed immediately by 17 or 37 percent whose rating were very satisfactory with grades from 88 – 100. As a whole, it can be seen that the students were rated satisfactory.

Available data on student performance in Education subjects present a mixed picture. Although data show some gains in achievement, most students still perform average below levels considered proficient or advanced by a national panel of experts. Results form the interview reveals that the students find the some subjects in Education difficult due to lack of focus because of many environmental factors that could possibly deviate their concentration, resulting to a number of them performing very low. According to Liu (2003) professional subjects in Education was perceived by many students as one of the most difficult subjects in the Education curriculum. With this perception, some students develop a negative attitude and lesser interest towards it.

### **Problem 2. Students' academic performance in the practicum subject**

Table 4 presents the students' academic performance in the practicum subject.

**Table 4. Students' academic performance in the practicum subject**

<b>Performance in the Practicum Subject</b>	<b>f</b>	<b>%</b>
93 - 100 (Very High)	11	25
84 - 92 (Average)	31	68
75 – 83 (Below average)	3	7
<b>Total</b>	<b>45</b>	<b>100</b>

It was found out that there are 31 or 68 percent of the respondents earned an average grade ranging from 84 – 92, followed immediately by 11 or 25 percent of the respondents were rated very high whose scores ranges from 93 – 100, and that 3 or 7 percent incurred below average with grades ranging from 75 – 83.

The data confirms the findings of the National Assessment of Educational Progress (NAEP, 2009) which assesses student performance in Education subjects to be average. NAEP (2009) achievement levels define what students should know and be able to do: Below Average indicates partial mastery of fundamental skills, Average indicates demonstrated competency over challenging subject matter; and very high indicates superior performance. This indicator presents data on NAEP achievement levels.

### **Problem 3. Significant relationship between the students' performance in the practicum subject, and their intellectual profile variables**

Table 5 indicates the significant relationship between the students' performance in the practicum subject, and their intellectual profile variables.

**Table 5. Significant relationship between the students' performance in the practicum subject, and their intellectual profile variables**

Intellective profile variables	Performance	Pearson's r	Correlation	t-value		Decision	Remarks
				Comp	Tab		

High school grade point average (GPA)		0.731	High correlation	2.73	1.645	Reject	Significant
Entrance Examination Result	Performance in the practicum subject	0.312	No correlation	0.59	1.645	Accept	Not Significant
General Weighted Average (GWA)		0.852	High correlation	3.42	1.645	Reject	Significant

**High school grade point average (GPA).** Based on the results of Pearson's  $r$  of 0.731, it can be said that there is a high correlation between the High school grade point average (GPA) and students' performance in the practicum subject. Moreover, since the computed  $t$ -value of 2.73 is greater than the tabular  $t$ -value of 1.645 using 0.05 level of significance, it can be said that there is a significant relationship between the students' performance in the practicum subject, and their High school grade point average (GPA). Data implies that the High school grade point average (GPA) affects the students' performance in the practicum subject. This study found that high school grade point average was a stronger predictor of performance in college. This study examines how well high school grade point average predicts college grades. Among recent high school graduates, high school grade point average was better. It was a more powerful predictor of college performance among students who entered college within a year of high school graduation.

**Entrance Examination Result.** Based on the results of Pearson's  $r$  of 0.312, it can be said that there is a low correlation between the entrance examination result and students' performance in the practicum subject. Moreover, since the computed  $t$ -value of 0.312 is less than the tabular  $t$ -value of 1.645 using 0.05 level of significance, it can be said that there is no significant relationship between the students' performance in the practicum subject, and their entrance examination result. Findings indicate that the entrance examination result does not affect the students' performance in the practicum subject. There was no significant correlation between the mean scores for the entrance examination and students' performance in the practicum subject.

**General Weighted Average (GWA) in the professional Subjects.** Based on the results of Pearson's  $r$  of 0.852, it can be said that there is a high correlation between the General Weighted Average (GWA) in the professional Subjects and students' performance in the practicum subject. Moreover, since the computed  $t$ -value of 3.42 is greater than the tabular  $t$ -value of 1.645 using 0.05 level of significance, it can be said that there is a significant relationship between the students' performance in the practicum subject, and their General Weighted Average (GWA) in the professional Subjects. Findings show that the General Weighted Average (GWA) in the professional Subjects affects the students' performance in the practicum subject.

#### Problem 4. Implications drawn based on the findings of the study

This study was conducted to help school administrators of higher educational institutions in using high school grade point average to assess student readiness for college. The policymakers and leaders considering which measures to include in a college-readiness indicator system may also be interested in its findings.

#### Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. The pre-service teachers' intellectual profile such as High School Grade Point Average (GPA) was satisfactory, while their Entrance Examination Result was fair, and that their General Weighted Average (GWA) in the professional Subjects was satisfactory.
2. The pre-service teachers incurred an average grade in their academic performance in the practicum subjects.
3. Significant relationship exists between the students' performance in the practicum subjects and their High school grade point average (GPA) and General Weighted Average (GWA) in the professional subjects, but no significant relationship in Entrance Examination Result.
4. This study is designed to assist state and institutional higher education leaders interested in using high school grade point average and Entrance Examination Result to assess student readiness for college.

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