

## THE PREDICTIVE VALUE OF THE PHILIPPINE APTITUDE TEST FOR TEACHERS (PATT) ON ACADEMIC PERFORMANCE IN TEACHER EDUCATION

DELOSA, JOVELYN G<sup>1</sup> & EDRALIN C. MANLA<sup>2</sup>

<sup>1</sup>Dean, School of Education, Xavier University, Philippines

<sup>2</sup>Faculty, School of Education, Xavier University, Philippines

### ABSTRACT

*Teacher Education Institutions play a crucial role in preparing teacher candidates. As TEIs will move to develop a teaching quality in the future, a thorough formal period of preparation and requirement for growth is needed. Various assessments, including tests are given upon admission, during semesters and before the students' exit from the college.*

*But for one to be enrolled in the School of Education, he should pass the entrance exam set by the Office of Promotion, Testing and Admission. As soon as one qualifies to be an Education student, another exam is required of him to take when he reaches his sophomore year, the Philippine Aptitude Test for Teachers (PATT). This is taken during the first semester of his second year in college. The Philippine Aptitude Test for Teachers (PATT) is designed to measure aptitudes which are deemed predictive of abilities required in the teaching profession. This is a written test consisting of six (6) subtests, namely: Verbal English, Verbal Filipino, Numeric, Induction, Situational Judgment and Information. PATT has been utilized in the college since 2010 thus it is important to know about its efficacy.*

*The most widely used measure of efficacy is predictive validity. The purpose of this study is to determine the predictive value of the Philippine Aptitude Test for Teachers on the education students' academic performance. The participants of the study are the 124 Fourth Year students. The study utilized descriptive research design and simple random probability sampling method. Results are reported using descriptive statistics and multiple linear regression. The results showed an average PATT and satisfactory academic performance. Furthermore, the study reveals that PATT predicts academic performance. The results can be utilized in designing support programs after students got the PATT by looking at the areas where they are strong and weak at. Initial interventions were done, one of which was an interview with the students based on their PATT results determining how the students can be guided in their academic engagement.*

**KEYWORDS:** *Aptitude Test, Predictive Value & Academic Performance*

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### INTRODUCTION

#### Background/ Objectives and Goals

It was highlighted in the National Board for Professional Teaching Standards (2014) that for teaching to join the ranks of other professions, it must embrace the same expectations, demands and competencies of its workforce. There is a need to create a culture to maintain the standards of the teaching profession as being claimed to be the noblest of all professions. According to the Policy and Position Papers (2012), the teaching profession must have a thorough formal period of preparation. Requirements for the entrants to the different teacher

education institutions have to be in place such as policies on admissions, discipline, professional standards and other education standards. In the Philippines, this challenge is further enhanced with the implementation of the K to 12 programs whereby full assurance of high performance standards is expected from future teachers. Aside from these quality standards they should also possess the 21<sup>st</sup> century skills for and they must be transformational leaders. The teaching profession has to respond to the challenge of quality assurance because this is the profession that prepares teachers who will be teaching the next generations of the country's citizenry.

The entry or admission requirements of schools must be highly reliable and productive in attaining success or the desired goals. At present, our Teacher Education Institution employs only college entrance examination such as CSAT, ATCU or OLSAT for admission. There have been questions whether these tests predict the academic performance and success of teacher candidates.

Since 2010, all second year college education students are required to take the Philippine Aptitude Test for Teachers (PATT) for monitoring purposes only. The monitoring scheme can provide information on how pre-service education be improved, including the inputs and processes in the college. The experiences of pre-service teachers are important inputs to teacher education in general in the areas of improving content delivery, methods of teaching used and assessment practices. The assessments done to pre-service teachers provide meaningful inputs on their progress and direction.

Based on the study about aptitude test and success of college students (2014), schools should continue to seek robust ways to select students with the greatest aptitude for teaching, training and practice. According to Linn and Gronlund (2000), any testing that does not contribute to the quality of instruction and its products because the test results are not intelligently interpreted and are under-utilized is too much testing, making it a useless and costly procedure for educational and research purposes.

Aptitude tests are important in determining the academic performance of students (Taylor, 1999 & Alanazi, 2014). Alanazi (2014) explained that the Aptitude Test used among undergraduate Saudi students specifically the General Aptitude Test has the predictive power to determine the academic performance of the learners. Several studies also conducted in the US Atkinson & Geiser, 2009, Kobrin & Milewski, 2002; Richardson, Abraham, & Bond, 2012 as cited in Alanazi, 2014) showed that American College Test (ACT) and the Scholastic Assessment Test (SAT) are valid predictors of academic success.

It is on this premise that this study is conceptualized. Perhaps, the following questions will find answers through this study. Are PATT results highly predictive of students' academic performance until their fourth year of studies? It is necessary to examine the value of giving this test to students who are also paying for the test fee.

The Philippine Aptitude Test for Teachers (PATT) is designed to measure aptitudes which are deemed predictive of abilities required in the teaching profession. This is a written test consisting of six subtests, namely: verbal English, verbal Filipino, Numeric, Induction, Situational Judgment and Information. As written in the Manual, PATT can be used in any of the following purposes: 1) as one of the admission requirements for College Education students; 2) for screening applicants for a teaching position through an assessment of their basic strengths and weaknesses; and 3) for those who are already in the service, the information obtained from the test can aid towards a better understanding of the individual, planning for continuous education programs, and for research purposes( PATT Manual, 2000). However, in this study, its

scope is only limited to the monitoring and screening of students for retention purposes. PATT falls specially under the category of tests for assessing potential for academic work. After the tests, the results are used to inform mentors on how to guide the students assigned to them as mentees.

This study is primarily anchored on the Systems Theory of Heylighen and Joslyn (1992). This theory focuses on the arrangement of and relations between the parts which connect them into a whole. It includes the environment, input, output, process, goal-setting, feedback and information. These are measured through aptitude test, achievement test or personality test.

The input in this study is the PATT result on understanding the meaning of English and Filipino languages; performing arithmetic operations and problem solving; discovering general principle; judging a given situation; and understanding teaching profession. The teaching or the transformation process is provided by the qualified teaching force, the SOE faculty, with the goals, vision and mission of the university excellently aligned. Part of the process is the presence of well-equipped instructional facilities or other support services.

The graduates with the desired Ateneo profile are the expected outputs. Their employment would be the most valuable contribution of the school to the society. Whatever would be their impact to the society, the result becomes another input to the school through feedback. This is again being considered in the transformation process in the pursuit for the culture of excellence. A student with high PATT scores is expected to be a very good input to the system with highly predictive of future excellent performance after the transformation processes (Alnahdi, 2015).

## **METHODS**

This study utilized the descriptive design. This involved the description of the PATT results and both the academic performance of the students. Descriptive statistics and multiple linear regression (MLR) were employed to describe academic performance and the extent that the PATT predicts this variable. Multicollinearity test was employed before the multiple linear regression was used.

The research was conducted in a Teacher Education Institution in Mindanao, Philippines. The data used to be the PATT scores of the students. Given:  $N=175$ ,  $\alpha=0.05$ ,  $HV=4$ ,  $LV=1$  and  $E=0.073$  the sample size was 124 fourth year students during school year 2014-2015. They were randomly chosen from the 175 total number of fourth year students as subjects of the study.

Furthermore, a focus group discussion was conducted with the students and secondary data were gathered: the PATT scores and QPI. In this study, the following terms are operationally defined for clarity and better understanding.

**Academic Performance:** This term is the average QPI at the end of the students' third and fourth years in the School of Education.

**Philippine Aptitude Test for Teachers:** This is an instrument designed to measure natural talents which are deemed predictive of abilities required in the teaching profession.

Permissions were secured from the students that their PATT results be analyzed for this study and the students were subjected to interviews on their experiences in the college as pre-service teachers.

## RESULTS

This section presents the results of the study. Table 1 shows the students' academic performance and PATT ratings. As reflected in Table 1, the students' overall mean QPI or academic performance during their third year and fourth year is 2.91 which is described as satisfactory with the standard deviation of 0.33. The standard deviation value indicates that the QPI ratings of the students are closer to each other with reference to the mean of 2.91.

On the whole, the students' PATT rating is 505.02 which is categorized as average. Its standard deviation is 71.25. As to the components of PATT, each of their overall ratings is: average for numeric measures, situational judgment and information; above average for induction; below average for verbal Filipino; and low average in verbal English. Their standard deviations range from 44 to 96 which means the PATT ratings are widely dispersed from the mean. They got the highest rating of above average in induction, but they have the lowest rating in verbal Filipino and English.

**Table 1: Students' Academic Performance and PATT Ratings**  
**1A. Academic Performance (N=124)**

Year Level	Mean	SD	Description
Third Year	2.91	0.32	Satisfactory
Fourth year	2.91	0.35	Satisfactory

**1B. PATT Results (N=124)**

PATT Components	Mean	SD	Description
Verbal English	469.44	80.89	Low Average
Verbal Filipino	417.18	48.80	Below Average
Numeric Measures	524.09	44.75	Average
Induction	596.08	77.63	Above Average
Situational Judgment	505.48	68.59	Average
Information	512.32	96.45	Average
<b>Overall</b>	<b>505.02</b>	<b>71.25</b>	<b>Average</b>

Table 2 displays the correlation matrix of the independent variables as the test of the presence or absence of multicollinearity. As shown in the table, the r values of the overall PATT and its components are lesser than 0.60 which signify absence of multicollinearity. One of the assumptions or requirements of the multiple linear regression analysis is there should be no existence of multicollinearity between the variables.

**Table 2: Correlation Matrix - Multicollinearity Test**

	VE	VF	Num	Induction	SJ	Info	GAS
VE	1						
	-0.133	1					
Numeric	0.071	0.038	1				
Induction	0.176	0.115	-0.041	1			
SJ	0.117	0.166	0.211	0.199	1		
Information	0.118	0.157	0.159	0.126	0.181	1	
GAS	0.352	0.386	0.431	0.365	0.355	0.313	1

**Legend:** VE → Verbal English Num→ numeric

VF → Verbal Filipino Info → Induction

SJ → Situational Judgment

GAS→ General Aptitude Score

Table 3 displays the summary of the multiple linear regression analysis between the students' PATT ratings and academic performance. It can be gleaned from the table that the regression model is highly significant (F= 11.37, P=0.0000). The PATT result accounted 40% of the variation in the students' academic performance with the remaining 60% due to other factors not included in this study. In fact, there is a strong positive relationship between PATT ratings and academic performance (Multiple R=0.66). For every unit increase or improvement in the PATT rating (GSA), there is a corresponding increase in the academic performance of 0.20. Assuming x= 0 (PATT) then y=1.66 (academic performance). The regression model equation is  $y = a + bx$ ; or specifically  $y = 1.66 + 0.20x$ .

With regard to the components of PATT, the following are positively and significantly predicting academic performance: verbal Filipino, numeric, situational judgment and information. For verbal English and induction, their positive effects are not significant.

**Table 3: Multiple Linear Regression Analysis Between the whole Set of Independent Variables (Components of PATT and GSA) and the Students' Academic Performance**

Independent Variables	Beta Coefficient	T-Value	P-Value	Level of Significance
Verbal English	0.05	2.29	0.192	Not Significant
Verbal Filipino	0.22	2.04	0.034	significant
Numeric	0.19	2.08	0.042	significant
Induction	0.02	0.33	0.741	Not Significant
Situational Judgment	0.38	2.41	0.022	Significant
Information	0.45	2.32	0.024	Significant
General Aptitude Score	0.20	2.29	0.041	Significant

Multiple R = 0.66  
 Adjusted R square = 0.40  
 F- Value = 11.37  
 P-Value = 0.00000  
 Level of Significance = highly significant  
 Constant = 1.66

Table 4 shows the summary of the students' common responses during the focus group discussion. A group of 10 students was selected based on their General PATT scores (representing the top and bottom performing students).

Both the top and bottom performing students affirm that they were mentored and supported by the teachers, peers and administrators in many different ways most especially during the times they were needed.

**Table 4: Summary of Results of the Focus Group Discussion (FGD) Conducted with Students**

Guide Questions	Common Responses of Students
1. What do you think are your strengths as an education student?	-Being innovative and resourceful ; -responsible, flexible & creative; -versatile & good communication skills; -making visual aids ; - patient and humble; -Time management & fairness; - class management & cooperation; -volunteerism & presentation skills
2. What are some	So many requirements; too much paper work; demanding teachers;

difficulties you experience as an education student?	financial needs; emotional aspects; enrolment process; class schedule; lots of projects with so limited time; Family problems and meeting deadlines
<b>Table 4: Contd.,</b>	
3. What support from SOE was provided to you?	-good teachers; counseling & moral support; media rooms ; good facilities; assistance; high quality teaching
4. Mention good experiences in SOE, with SOE.	-mock LET exam; general assemble and family day; internship; SOE night and RCE engagement; SOE Awards for dean's list; seminars & trainings; holistic formation
5. How can we help you be more successful pre-service teacher?	Encouraging us to do our best and conquer our fears; exposure to related fields; consultation hours maximized checking interns during internship; giving feedbacks on performance; monitoring; supervisors of interns should be hands on with students.

The academic performance of the students in general is just at the satisfactory level. Seemingly, the culture of excellence is not yet evident. This is also true to their overall PATT rating, which is described as average. They are at the minimum level in academics and aptitude.

In this study, the multiple linear regression can be used because there is no multicollinearity. The results of the multiple linear regression show that the Philippine Aptitude Test for Teachers (PATT) given to the students has a highly significant predictive value. PATT positively predicts students' academic performance. Forty percent of the variation in academic performance can be explained by their rating in PATT. This result is supported by other research findings (Al Kahtani (2006) as cited in Alanazi, 2014; Alanazi (2014) that aptitude influences academic performance in the courses they are taking. There were numerous studies in the US reporting the predictive value of aptitude tests Alshumran (2007), Barmola (2014), Chincholikar and Mishra (2014) and Alanazi (2014).

The findings imply that there is a need to study the components of PATT and investigate on how these components be addressed while they will be spending their 2<sup>nd</sup> year, so that the program will be made available on how to enhance such skills embedded in each component.

It is noticed that the results on Verbal English and Filipino need to be looked into with Verbal English with lower average results and Filipino, a rating of low average. Communication skills are competencies in teaching that future teachers have to be enhanced. In the study of Mouw and Xie (1999), bilingualism has a positive effect on the academic achievement of immigrant children and that growing up speaking two languages is beneficial since it stimulates cognitive development.

It is interesting to note that in the review of literature, it was found out that the aptitude tests given to the students were administered before they were able to join a course, whereas in the case of the School of Education pre-service teachers, the Philippine Aptitude Test for Teachers was given during their second year at the institution. It is then important to look into each component and how the skills embedded in each component be enhanced because these skills are facilitating the performance of the students in their academic engagement. If only teachers can be informed and made aware that these components predict academic performance in later years, then in the subjects they are teaching, they will try to focus more or integrate the development of each component specially situational judgment.

Students were asked questions about their strengths as Education pre-service teachers and their difficulties. The students identified their strengths which include being innovative, resourceful, creative, possessing good communication skills, artistic and responsible. Their difficulties range from personal that affects their student life and their academic life.

The students mentioned about financial difficulties, stress, time management, family concerns. Difficulties in school include the bulk of assignments given, overcrowded schedules, and lack of reading habits. The responses of the students specifically on their difficulties are important to be noted since these are maybe being the conditions which in one way or another have shaped how they perform, the context of where they are at needs to be understood so that the proper support be given to these teacher candidates. Looking at their Average PATT results, and the satisfactory academic performance it is crucial that their situations specially the challenges they are facing are clearly understood.

Furthermore, the students were asked for the support that they need from the School of Education including more exposures to the real classroom experience, mentoring, more workshops and timely feedback. It is also important to mention that a possible area for further study is to determine whether the academic performance of this batch predicts their Licensure Examination for Teachers' performance.

PATT is predictive of students' academic performance. It functions as it is intended to be, thus, the School of Education can attest to the validity of its monitoring and screening for retention purposes. It is a very good tool as an additional admission requirement for the School of Education. The honing process will start as early as their first year in the education curriculum. Further, it can also help teachers better prepare teacher candidates. It is on par with other standardized tests like CSAT or ATCU.

The findings of this study affirm the systems theory that the nature of the input and the quality of the processes like the teaching process, determine the kind of output. This output through his/her impact on the society will provide feedback to the school system and this serves as a new input and again goes through the transformation processes. This is the cycle because the pursuit of the culture of excellence never ends.

## **CONCLUSIONS**

The School of Education monitoring and screening for retention activities is helpful to the students. Those who really have the passion to teach would most likely develop their capabilities. They would also acquire core values as future teachers. Acknowledgments and Legal Responsibility

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