

Predicting success in teacher education: Revisiting the influence of high school GPA, admission, and standardized test scores on academic and licensure performance

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Abstract

This predictive study explored the influence of three admission variables on the college grade point average (CGPA), and licensure examination ratings of the 2015 teacher education graduates in a state-run university in Northern Philippines. The admission variables were high school grade point average (HSGPA), admission test (IQ) scores, and standardized test (General Scholastic Aptitude - GSA) scores. The participants were from two degree programs – Bachelor in Elementary Education (BEE) and Bachelor in Secondary education (BSE). The results showed that the graduates' overall HSGPA were in the proficient level, while their admission and standardized test scores were average. Meanwhile, their mean licensure examination ratings were satisfactory, with high (BEE – 80.29%) and very high (BSE – 93.33%) passing rates. In both degree programs, all entry variables were significantly correlated and linearly associated with the CGPAs and licensure examination ratings of the participants. These entry variables were also linearly associated with the specific area GPAs and licensure ratings, except in the specialization area (for BSE). Finally, in both degrees, CGPA and licensure examination ratings were best predicted by HSGPA and standardized test scores, respectively. The implications of these findings on admission policies are herein discussed.

Keywords: Admission test scores, College Grade Point Average (CGPA), entry variables, High School Grade Point Average (HSGPA), licensure examination ratings, standardized test scores

Introduction

It is the aim of every organization to attain quality (Altbach, Reisberg, & Rumbley, 2019). For higher-education institutions (HEIs), graduation rates, employability, and licensure performance are among the yardsticks of quality (Alfonso, 2019; Callena, Gabales, Tutor, Villanueva, Gonzales, de Vera, & Pantaleon, A. (2019). As such, many HEIs exert all efforts to prepare their graduates very well, in the attempt that they will later demonstrate good licensure ratings and employability records.

One way of ensuring quality in higher-education institutions is the imposition of admission policies. Most institutions provide college qualifying examinations to screen out potential entrants. Among Local and State Universities and Colleges, there will be an anticipated influx of students because of the recent approval of the Universal Access to Quality Tertiary Education Act (RA 10931 of 2016) in State and Local Universities and Colleges (SUCs/LUCs). However, because of limited resources and facilities in these institutions, not all students seeking free tuitions can be accommodated. The SUCs/LUCs must then seek ways to regulate the number of college entrants. One scheme that these institutions could adopt is the strengthening of their admission procedures and policies.

In the case institution, the admission procedures include the giving of college qualifying examination (CQE). The CQE has two parts. One part measures verbal IQ, using the Otis-Lennon School Ability Test (OLSAT) while the second component measures non-verbal abilities, using the Raven's Progressive Matrices (RPM). But before an applicant takes the CQE, he/she must have a High School Grade Point Average (HSGPA) of at least 80%. A portion of the HSGPA is added to the CQE to determine the qualifiers.

Other admission data required of college entrants, albeit inconsistently imposed, is their standardized test scores. These scores are obtained from the applicants' general scholastic aptitude (GSA) reported in their ratings in the National Career Assessment Examination (NCAE). The GSA scores are composite scores from verbal, scientific, and mathematical ability, including reading comprehension. The GSA, however, is not used in the screening procedures.

Admission variables as predictors of college academic performance

There are several studies documenting the predictors of college academic performance. One of these studies is a meta-analysis that gather the result of articles published between 1997 and 2010 (Richardson, Abraham, & Bond [2012]. These articles explored the influence of demographic variables (age, sex, and socio-economic status), five traditional measures (IQ, HSGPA, Scholastic Aptitude Test – SAT or American College Test - ACT, and A level points) and non-intellectual measures of personality or motivation. The authors noted that the best class of predictors (by far) are the traditional correlates, all of which correlate at least $r = 0.20$ (intelligence measures) up to $r = 0.40$ (high school GPA). ACT scores were also correlated ($r = 0.40$) with CGPA.

Other studies in the US claim that between HSGPA and standardized test scores, the former is a better predictor (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015; Schaffhauser, 2017). These results lead to some groups proposing the abolition of standardized testing in schools.

In a large-scale, two-part study using a cohort of 47,303 students in the United States, Galla, Shulman, Plummer, Gardner, Hutt, Goyer, D'Mello, Finn, and Duckworth (2019) confirmed earlier report that high school grades are better predictors of on-time college graduation than are admission test scores. The authors then argued that "success in college

requires not only cognitive ability but also self-regulatory competencies that are better indexed by high school grades” (p. 2080).

In a more recent article, Allensworth and Clark (2020) examined the alleged inconsistency of the predictive abilities of high school GPAs and ACT scores on college completion. Using admission data from Chicago public schools, the two authors discovered that the relationship of HSGPA with college graduation was strong and consistent and larger than school effects. In contrast, they noted that the relationship between ACT scores and college graduation is weak and smaller than high school effects, and the slope of the relationship varies by high school.

In the Philippines, Pascua, Navalta, dela Cruz, & Valderama (2012) compared the ability of two admission data, HSGPA, and college admission test scores, to predict college academic performance. They found out that HSGPA is a significant predictor of college GPA. However, admission test scores in English and Science are non-significant predictors. Only admission test scores in Mathematics were able to predict college GPA.

Concentrating on prospective teachers in a University in South-Eastern Philippines, Labad, Hiponia, and Gobales (2019) explored the predictive ability of admission test scores and standardized test scores for teachers on college academic achievement. The authors reported that the overall scores in both admission and standardized tests did not enter as predictors of college academic performance. Only certain constructs under each test were significant predictors.

Admission variables as predictors of teachers’ licensure examination ratings

Studies on the predictors of teachers’ licensure examination results in the Philippines were synthesized by Orlanda-Ventayen (2020). From the synthesis of the results of related articles, the variables arising as significant predictors were administrative, faculty, and student factors, attendance to review classes, and academic performance (Aquino & Balilla, 2015; Ferrer, Buted, & Ferrer; 2015; Nool & Ladia, 2017; Quiambao, Baking, Buenviaje, Nuqui, & Cruz, 2015; Visco, 2015)

Licensure examination performance was also linked with college academic performance of elementary education majors (Chan-Rabanal, 2016), and of both elementary and secondary education majors (Bellen, Abela, & Truya, 2018; Cahapay, 2020; Fontejon-Bonior & Dela Rama, 2018; Quiambao et al., 2015).

The ability of college admission variables on the teachers’ licensure examination results of graduates were explored. Of these studies, admission test scores, IQ scores, and HSGPA showed varying levels of associations with LET ratings. For instance, admission test scores were reported to cause significant differences in the graduates’ licensure performance (Cahapay, 2020), or emerge as significant predictors of ratings in the same examination (Ferrer et al., 2015; Gerundo & Balagtas, 2014; Labastilla, 2017).

Scores in the Ottis-Lennon School Ability Test (OLSAT), a measure of intelligence quotient, were also found to be significant predictors of licensure ratings (Hena, Ballado, Dalucapas, Ubane, & Basierto, 2014; Quiambao et al., 2015).

Another admission variable explored as determinant and predictor of teachers’ licensure examination was high school grade point average (HSGPA). In these studies, the results varied. For example, HSGPA did not emerge as significant predictor of the licensure ratings of both elementary and secondary education majors (Gerundio & Balagtas, 2014). In contrasts, said admission variable had a substantial relationship with overall and professional education licensure ratings of elementary education graduates (Labatilla, 2017).

Contributions of this study

This study explored the predictive ability of HSGPA, admission test scores, and standardized test scores on college and licensure performance of prospective teachers. It adds to the current literature in a number of ways:

1. **Including standardized test scores as additional predictors of academic and licensure performance.** While some studies have shown the predictive potential of standardized scores on college academic performance, no studies have yet been conducted on the predictive potentials of standardized test scores, much less general scholastic aptitude scores, on licensure performance of prospective teachers.
2. **Establishing the contribution of HSGPA on academic and licensure performance of teacher education students in the Philippines.** While the contribution of HSGPA on college academic performance has recently become better understood, such result has yet to be validated in the context of Filipino learners. Unfortunately, published studies on the contribution of HSGPA on college academic performance of Filipino students is still wanting. There is a single work was directed towards this aim. Likewise, the relationship between HSGPA and licensure performance of teacher education graduates has not been properly established because of contrasting results. This study hopes to strengthen such relationships.
3. **Contributing to the literature on the prognostic ability of admission test scores on academic and licensure performance.** Prior research has demonstrated on the weak associations between admission test scores and college academic performance. However, there is not much data to support this claim when it comes to prospective teachers in the Philippines. Such is the case, especially on the association between admission test scores and college academic performance.

As to date, the case institution has not done an appraisal on how these admission data can influence college GPA or licensure performance of the college entrants. It must be a worthwhile endeavor to find out how these admission variables can predict success in college and in licensure examinations. Hence, this study is conceptualized.

Research objectives

This study explored the potentials of three admission data as predictors of college GPAs and licensure ratings of teacher education students. Specifically, it profiled the admission variables, college, and licensure examination performance of the graduates from the case institutions' two degree programs offering teacher education. It also determined whether the three admission variables can predict academic and licensure performance.

The three admission variables were HSGPA, admission test scores (ATS), and general scholastic aptitude (GSA). College performance was indicated by college grade point average (CGPA), while licensure performance was indicated by the graduates' ratings in the Board Licensure Examination for Professional Teachers (BLEPT).

Methodology

The case institution

The case institution is the capital campus of a state-run University in the Northern Regions of the Philippines. The case college, the College of Teacher Education (CTE) is the largest

college in the university in terms of student enrolment. The college offers three undergraduate degrees – Bachelor in Secondary Education (BSE), Bachelor in Elementary Education (BEE) and Bachelor in Library and Information Science (BLIS). Only BSE and BEE graduates are mandated to take the BLEPT.

This study was conducted prior to the establishment of the new teacher education curriculum in the Philippines. Hence, the old set-up was used in the study. The CTE used to have two specializations under BEE. These are Early Childhood Education (ECED) and General Elementary Education (GEE). The BSE meanwhile have nine specializations – Biological Sciences (Bio.Sci.), English (Eng.), Filipino (Fil.), Mathematics (Math), Physical Education, Health, Music, and Arts (PEHMA), Physical Sciences (Phy.Sci.), Social Studies (SST), Technology and Home Economics (TLE), and Values Education (Val.Ed.).

Participants of the study

The participants of the study were the BEE and BSE graduates who took the September 2015 BLEPT. Only those graduates with complete entry data and who expressed their consent to participate were included in this study. Hence, 106 of the 152, or 69.74% of the graduates from both degrees were the final participants.

The BEE-GEE group (32.18%) comprised most of the participants. They were followed by the BSE-English (13.82%) and BSE-Mathematics (10.23%). The fewest sub-group were from BSE-Val.Ed. (1.19%).

The age of the participants ranged from 19 to 26, with the mean of 20.88. The female participants comprised the majority (81.65%) of the participants.

Data collection procedures

During the last semester of their program, in their off-campus internship, the participants were requested to fill in a consent form that sought their consent to participate in the study. The consent form specified that their participation in the study is by voluntarily allowing their admission and college academic records, and their licensure ratings to be used for research. The consent form also specified that the data will be used only for research purposes and they will be identified with a unique code known only to the researchers. The participants were also assured that the data will be destroyed in the culmination of the study. From these procedures, 142 (93.42%) have signed the consent form, expressing their willingness to participate in the study.

The admission data were obtained from the participants' admission records they submit during entry, while their College GPAs were requested from the University Registrar. A letter was written to the university vice president for academic affairs, seeking her permission for the researchers to access the admission and college academic records of the participants who voluntarily consented to participate in the study. The accomplished consent forms were attached to the letter. Upon approval, the letter was presented to the director of the office of the university registrar. The researchers personally gathered the data from the participants' records.

The official result of licensure examination performance, meanwhile, was requested from the local branch of the Philippine professional regulations commission. The list included the examinees' overall ratings and their scores in the general education, professional education, and specialization areas (for BSE).

The participants' CGPA, together with their GPAs in the general education (GEGPA), professional education (PEGPA), and specialization courses (SPGPA), were

recorded separately. For consistency with the other admission variables explored, the GPAs were transformed so that a higher value indicates a higher GPA.

The HSGPAs were categorized, following the scheme used by the Department of Education, as follows: 84 and below (developing to approaching proficiency), 85 to 89 (proficient), and 90 and above (advanced). Meanwhile, ATS were interpreted following the schemes set by the OLSAT as follows: 90 to 112 (Average), 113 – 119 (Above average), and 120 and above (Superior to Very Superior). Finally, the participants’ GSA were categorized following the specifications set by the National Education Testing and Research Center of the Philippine Department of Education. Scores from 98 to 99 were considered very high, 86 to 97 - above average, 51 to 85 - average, and 15 to 50 - low average.

Data analysis

To compare CGPAs and ratings between degree programs, the Mann-Whitney U-test was used. On the other hand, T-test, or One-Way Analysis of Variance (One-way ANOVA) were used to compare BLEPT ratings in the specific areas. Also, chi-square was used to compare passing rates in the BLEPT.

Pearson-r was employed to explore the association of the participants’ entry variables and college GPAs and their licensure examination performance. To interpret the result of the correlation, the guidelines suggested by Cohen (1998), was utilized as shown below:

r	Description	Interpretation
.10 - .29	Small	Weak
.30 - .49	Medium	Moderate
.50 – 1.00	Large	Strong

Finally, Coefficient of determination (r^2) was computed to determine how much variances in their licensure examination scores are explained by the said variables.

Findings and discussion

Admission data of the participants

Overall, the participants’ enter the college proficient in the subjects they have taken in high school, and average in both ATS and GSA (Table 1). These data imply that the entrants possess the aptitude and mental abilities they need to carry out the academic rigors and demands of college life. Such “average” performance of the participants in the ATS is similar to the work of Labad et al. (2019) and Pascua et al. (2012) on their entrants in the teacher training institution in Southern Philippines and North Central Philippines, respectively. However, the result of the present study seem to deviate from that of Labastilla (2017), who reported on his respondents’ “average” HSGPA and barely passing scores in the university’s admission test.

Comparing the admission profile of the entrants from the two degrees, mean data in all three admission variables were significantly higher among the BSE group, and more BSE entrants belong to the highest categories in each of these variables. The variation could be explained by the differences in the cut-off scores in the two degree programs. The minimum ATS requirement for BSE is 95, while for BEE, it is 90.

For the BEE group, all entry variables were higher among the GEE cohort. Among the BSE graduates, entry data were higher among the Bio.Sci., Math, Phy.Sci., and English. Such trend is similar to the observation of Gerundio & Balagtas (2014) on their analysis of graduates in a premier Teacher Education Institution.

Table 1. Admission data of the BEE and BSE graduates. (Values in parentheses are %)

Admission Variables	Categories				Mean
	HSGPA*	Dev. to Ap. Prof.	Prof.	Adv.	
BEE		41 (29.08)	83 (58.57)	17 (12.06)	86.17b
BSE		38 (20.11%)	92 (48.68)	59 (31.22)	87.51a
	<u>ATS*</u>	Average	Above average	Superior	
BEE		94 (69.63)	36 (26.67)	5 (3.70)	104.36b
BSE		93 (57.76)	46 (28.57)	22 (13.66)	108.85a
	<u>GSA*</u>	LA to BA	Ave.	AA to Exc.	
BEE		7 (5.19)	75 (55.56)	53 (39.26)	78.34b
BSE		5 (3.03)	71 (43.03)	89 (53.94)	83.38a

*Means of different letters are significantly different at $p = 0.05$, Mann-Whitney U-test. *The two degrees significantly differ based on Chi-square at $p = 0.05$ level.

College academic performance of the participants

The mean college GPAs of the BSE graduates is “good”, while that of the BEE is “satisfactory” (Table 2). Moreover, the mean CGPAs are significantly higher among the BSE group. Such difference could have been contributed by the BSE groups’ higher entry data as a result of their higher cut-off scores. Such result is similar to the findings of Pascua et al. (2012) and Labastilla (2017).

The BSE graduates also have higher in GPAs in both Gen.Ed. and Prof. Ed. subjects. However, the two cohorts are even in their GPAs in the specialization subjects. In both degrees, the graduates’ Prof.Ed. GPAs are significantly higher than their GPAs in Gen.Ed. and Sp. subjects, which, incidentally, are statistically even at $p = 0.05$ (ANOVA with Tukey’s Test). This result on higher the grades in the Prof.Ed. area affirms the findings of Gerundio and Balagtas (2014), and Arenillo and Arenillo (2009).

Considering the CGPAs by specialization, higher means were registered by the Bio.Sci. (1.88), Values Ed. (1.93), Phy.Sci. (1.95), and English (1.96) sub-groups. Also, the math (1.97) and Filipino (1.99) sub-groups also have relatively higher CGPAs.

Table 2. College GPA of the BEE and BSE participants (values in parentheses are %)

Admission Data	Satisfactory	Good	Very Good	Mean
		<u>Gen Ed. GPA*</u>		
BEE	86 (60.56)	47 (33.10)	9 (6.34)	2.14b
BSE	101 (53.72)	59 (31.38)	28 (14.89)	2.09a
		<u>Prof.Ed. GPA*</u>		
BEE	52 (36.62)	69 (48.59)	21 (14.79)	2.00b
BSE	31 (16.49)	82 (43.62)	75 (39.89)	1.82a
		<u>Sp. GPA^{ns}</u>		
BEE	85 (59.86)	45 (31.69)	12 (8.45)	2.13a
BSE	112 (63.28)	57 (32.20)	8 (4.52)	2.15a
		<u>CGPA*</u>		
BEE	94 (66.20)	39 (27.46)	9 (6.34)	2.14b
BSE	69 (36.70)	103 (54.79)	16 (8.51)	2.00a

*Means of different letters are significantly different at $p = 0.05$, Mann-Whitney U-test. *The two degrees significantly differ based on Chi-square at $p = 0.05$ level.

Meanwhile, the CGPAs of the PSED (2.03) sub-groups were significantly higher than that of the GEE (2.15) sub-group. This variation can be explained by the differences in their mean GPAs in the specialization subjects, which is much higher among the ECED sub-groups (1.87 versus 2.16). The differences in the specialization GPAs, in turn, can be

explained by presence of several math and science courses in the GEE specialization. An analysis of the graduates' record reveals that many of the BEE-GEE subgroups have failed in these two courses, indicating that the math and science courses are indeed difficult.

Licensure examination performance of the participants

The mean BLEPT general rating of the participants is satisfactory, as it is higher than the passing score set by the Professional Regulations Commission (Table 3). Moreover, the mean general ratings, and area ratings of BSE participants were significantly higher than the BEE groups. Also, in terms of passing rates, the BSE graduates posted significantly higher general ratings, and Gen.Ed. and Prof.Ed. ratings.

In terms of the scores in the examination areas, the BEE sub-group performed evenly in the Gen.Ed. and Prof.Ed. components. However, significantly higher passing percentage was posted in the Prof.Ed. area. Meanwhile, the BSE participants had scored significantly higher in Gen.Ed, but were statistically tied in the Prof.Ed., and in the specialization. In terms of passing rates, a high proportion of the participants passed the Gen.Ed, and Prof. Ed. components of the BLEPT, while relatively fewer graduates passed in the Sp. component.

Table 3. BLEPT ratings of the BEE and BSE participants (values in parentheses are %)

Degree	Passed	Failed	Mean Ratings
<u>BLEPT Gen.Ed.</u>			
BEE	115 (60.85)	74 (39.15)	76.82b
BSE	161 (97.58)	4 (2.42)	81.23a
<u>BLEPT Prof.Ed.</u>			
BEE	106 (77.37)	31 (22.63)	76.00b
BSE	154 (93.33)	11 (6.67)	79.03a
<u>BLEPT Sp.</u>			
BSE	140 (84.45)	25 (15.15)	78.35
<u>BLEPT General Rating</u>			
BEE	110 (80.29)	27 (19.71)	76.33a
BSE	154 (93.33)	11 (6.67)	79.19b

**Means of different letters are significantly different at p = 0.05, Mann-Whitney U-test*

The BSE grouped performed best in the Gen.Ed. area, then Prof.Ed., then Sp. This means that their high Prof.Ed. GPAs then not translate well with their Prof.Ed. ratings. However, their lower ratings in the Sp. area coincide with their relatively lower GPAs in this component. Among the BEE group, while their GPAs in Prof.Ed. were higher than in Gen.Ed., the trend in their BLEPT ratings is reversed.

When mean general ratings (MGR) and passing percentage (PP) are compared according to specialization, the BEE-GEE (MGR = 76.60, PP = 82.61%) sub-group outperformed their BEE-ECED (MGR = 74.92, PP = 68.18%) counterparts. As for the BSE group, the Bio.Sci. graduates outperformed all other specializations in terms of both MGR (83.57) and PP (100%). Other specializations with 100% passing rates were the Filipino (MGR = 80.32), and Values Ed. (MGR = 79.84) sub-groups. The passing rates of the Phy.Sci. (80.95%, MGR = 77.10), and PEHMA (87.95%, MGR = 77.03) are relatively lower. Only one examinee from the math (PP - 96%, MGR = 80.24), SST (PP = 96.30%. MGR = 7.17), and TLE (PP = 92.86%, MGR = 78.10) did not pass the BLEPT. Such results imply that the institution fared well in terms of passing rates, even if the mean rating is just a few points above the passing score.

Degree of association among entry variables and College GPA

The coefficients of correlation and determination of the admission data and the college GPA are shown in Table 4 (BEE) and Table 5 (BSE). The regression equations are also shown in the tables.

All entry variables significantly correlated with the college GPAs of the BEE participants (Table 4), even if the strength of relationship is moderate. Moreover, there were linear relationships among all entry data and each the specific CGPAs in the three sets of courses, i.e., Gen.Ed., Prof.Ed., and Sp.

Of the three entry variables, HSGPAs came out as the best predictor of the College GPAs of the BEE participants. HSGPA contributed 28.3% of the variance in the CGPA of the participants. It also is the best predictor of GPAs in each of three sets of subjects. Moreover, HSGPA best predicts Gen.Ed. GPAs, with 33.7% of the variance in Gen.Ed. GPAs being associated with this entry variable. The strong association between HSGPA and CGPA affirms the reports of Allensworth and Clark (2020), Galla et al. (2019), Pascua et al.(2012), Schaffhauser (2017), and Westrick et al. (2015).

On the other hand, while the participants' IQ scores and GSA – NCAE were moderately correlated with their college GPAs, the association was nevertheless significant. However, IQ scores contribute a slightly higher variance to the participants' college GPAs.

The trend in the strength of association among entry variables and CGPAs is similar among the two BEE specializations is similar. In both specializations, HSGPA is the best predictor, followed by IQ scores, then GSA. Furthermore, the strength of entry data-GPA association is higher among the PSED cohort.

Table 4. Coefficients of correlation and determination and regression equation among the admission data and college GPA of the BEE participants

Admission Variables	r	r ²	P	Regression Equation
<u>Gen.Ed. GPA</u>				
HSGPA	0.581	0.337	0.000	Y = -0.044X + 5.915
ATS	0.509	0.260	0.000	Y = -0.014X + 3.602
GSA	0.491	0.241	0.000	Y = -0.007X + 2.712
<u>Prof.Ed. GPA</u>				
HSGPA	0.511	0.261	0.000	Y = -0.33X + 4.843
ATS	0.418	0.175	0.000	Y = -0.010X + 3.036
GSA	0.420	0.176	0.000	Y = -0.005X + 2.421
<u>SP. GPA</u>				
HSGPA	0.426	0.181	0.000	Y = -0.033X + 5.004
ATS	0.365	0.133	0.000	Y = -0.011X + 3.222
GSA	0.326	0.107	0.000	Y = -0.005X + 2.521
<u>College GPA</u>				
HSGPA	0.532	0.283	0.000	Y = -0.037X + 5.303
ATS	0.441	0.194	0.000	Y = -0.011X + 3.310
GSA	0.423	0.179	0.000	Y = -0.006X + 2.588

Meanwhile, entry variable – GPA associations appeared weakest in the Sp. area, although the relationship was still moderately strong and significant. This lower degree of association could be explained by the differences in the components of the specialization subjects.

The regression equations that can be used to predict specific and college GPAs are obtained. For example, College GPA can be predicted by HSGPA with the equation $Y = -0.037X + 5.303$. Applying this equation, a student will qualify for cum laude honors (CGPA = 1.75) if his HSGPA is equal to 96.03.

Similar to the result among the BEE participants, all three entry variables were significantly correlated with the college GPAs of the BSE group. This result indicates a linear relationship among the entry variables and college GPAs, and hence, the predictive value of these variables. The participants' HSGPA also appeared the best predictor of college, Gen.Ed., and Prof.Ed. GPAs with percent of shared variance of 36.2%, 40.4%, and 42.8%, respectively.

General scholastic aptitude was strongly correlated with the participants' college GPAs. Moreover, it was the only variable that correlated significantly with Sp. GPAs. The degree of association, however, was weak.

The inability of HSGPA and IQ scores to predict Sp. GPAs can be explained by the differences in specializations. While the participants take the same Gen.Ed. and Prof.Ed. courses, they have to take different specializations subjects, which are of varying levels of difficulty. A correlation that takes the participants as one would not give a good result.

Table 5. Coefficients of correlation and determination and regression equation among admission data and College GPA of the BSE participants

Admission Variables	r	r ²	P	Regression Equation
<u>Gen.Ed. GPA</u>				
HSGPA	0.603	0.404	0.000	Y = -0.046X + 6.108
IQ	0.377	0.142	0.000	Y = -0.010X + 3.184
GSA	0.560	0.314	0.000	Y = -0.011X + 3.007
<u>Prof.Ed. GPA</u>				
HSGPA	0.654	0.428	0.000	Y = -0.040X + 5.305
IQ	0.293	0.086	0.000	Y = -0.006X + 2.511
GSA	0.484	0.235	0.000	Y = -0.008X + 2.439
<u>SP. GPA</u>				
HS PA	0.087	0.008	0.233	
IQ	0.087	0.007	0.278	
GSA	0.174	0.030	0.025	Y = -0.004X + 2.491
<u>College GPA</u>				
HSGPA	0.602	0.362	0.000	Y = -0.032X + 4.845
IQ	0.341	0.116	0.000	Y = -0.006X + 2.700
GSA	0.532	0.283	0.000	Y = -0.008X + 2.635

When the entry variables were correlated with the Sp. GPAs in each of the BSE specializations, there were strong association with the HSGPA of the Values Ed (r = 0.835), Filipino (r = 0.751), TLE (r = 0.620), and English (r = 0.506) sub-groups. The association, meanwhile, was moderate among the participants from Math (r = 0.442), PEHMA (r = 0.432), and SST (r = 0.483). Weakest variable – SP GPA association was noted among the two science sub-groups.

Meanwhile, there was strong GSA – Sp. GPA correlation among the Phy.Sci. (0.731), TLE (r = 0.641) and English (r = 0.501) sub-groups, while these associations were moderate among the Bio.Sci. (r = 0.494), Values Ed. (r = 0.428), SST (r = 0.399), and math (r = 0.339) participants. The IQ scores of the Phy.Sci. (r = 0.625) and Values Ed. (r = 0.578) were strongly correlated with their Sp. GPAs. Finally, moderate correlations were computed among the Bio.Sci. (r = 0.422), and TLE (r = 0.430).

All three entry variables can significantly predict the Sp. GPA of the English samples, while no variables are significantly related to the Sp. GPAs of the Bio.Sci. sub-group.

The college GPAs of all the BSE specializations, save the two science cohorts (r = 0.266, and 0.205 for Bio.Sci. and Phy.Sci., respectively), were significantly associated with their HSGPAs. Specifically, there were strong HSGPA-CGPA associations among the Filipino (r = 0.848), Values Ed. (r = 0.750), TLE (r = 0.671), and Math (r = 0.654) sub-groups,

while moderate correlations were noted among the PEHMA ($r = 0.460$), and SST ($r = 0.418$) samples.

Meanwhile, there was linear relationships among the IQ scores and CGPAs of the English ($r = 0.565$) and Phy.Sci. ($r = 0.662$) graduates. The correlation between IQ scores and the CGPAs of the samples from TLE ($r = 0.447$), Values Ed. ($r = 0.455$), and Bio.Sci. ($r = 0.308$) were moderately strong, but it was weak among the Filipino ($r = 0.183$), Math ($r = 0.274$), PEHMA ($r = 0.185$), and SST ($r = 0.227$).

Finally, GSA-CGPA associations were strong among the samples from Phy.Sci. ($r = 0.676$), PEHMA ($r = 0.633$), TLE ($r = 0.600$), but moderate among the English ($r = 0.484$), Filipino ($r = 0.467$), Bio.Sci. ($r = 0.452$), Math ($r = 0.400$), and SST ($r = 0.334$). Weak association was noted in the Values Ed. ($r = 0.169$) samples.

In summary, all the entry variables were significantly correlated with the CGPAs of the English sub-groups, while HSGPA and GSA had linear relationships with the CGPAs of the PEHMA and TLE cohorts. Meanwhile, the IQ scores, and GSA of the samples from Phy.Sci. were linearly associated with their CGPAs. Finally, none of the entry variables correlated significantly with the CGPAs of the Bio.Sci. cohorts. These results reflect the differential degree of associations among entry variables and college and specific area GPAs.

Degree of association among entry variables and licensure examination (BLEPT) performance

Table 6 indicates that all entry variables significantly correlated with the BLEPT ratings of the BEE group. This means that all the entry variables are valid predictors of BLEPT performance. In particular, GSA appears the best predictor of BLEPT and Gen.Ed. and Prof.Ed. ratings. Almost 40% ($r^2 = 39.1\%$) of the variance in the BLEPT general ratings can be contributed by their GSA. This relationship might be explained by the fact that both the BLEPT and NCAE are standardized tests. The result seems to imply that students who are good in one type of standardized exam are also good in another type.

The significant association between HSGPA and BLEPT ratings contradicts the findings of Gerundio and Balagtas [13], but supports the result of Ferrer et al. (2015). Furthermore, the result on the ability of IQ scores to predict BLEPT performance is similar to the findings of Quiambao, et al. (2015), and Hena, et al. (2015).

IQ scores also came out as strong predictors of BLEPT general ratings, contributing 27.6% of the variance in this outcome variable. The standardized nature of IQ tests could also explain the strong relationship between the two variables. Moreover, HSGPA is a better predictor of Gen.Ed. ratings, while IQ scores have better predictive value on Prof.Ed. than HSGPA.

Table 6. Coefficients of correlation and determination and regression equation among admission data and licensure examination (BLEPT) performance of the BEE participants

Admission Variables	r	r ²	p	Regression Equation
<u>BLEPT Gen.Ed. Rating</u>				
HSGPA	0.475	0.226	0.000	Y = 0.982X + -7.754
IQ	0.463	0.208	0.000	Y = 0.336X + 41.890
GSA	0.584	0.341	0.000	Y = 0.224X + 59.580
<u>BLEPT Prof.Ed. Rating</u>				
HSGPA	0.405	0.163	0.000	Y = 0.682X + 17.304
IQ	0.457	0.210	0.000	Y = 0.238X + 51.221
GSA	0.515	0.265	0.000	Y = 0.149X + 64.721
<u>BLEPT General Rating</u>				
HSGPA	0.489	0.239	0.000	Y = 0.802X + 7.281
IQ	0.526	0.276	0.000	Y = 0.277X + 47.489
GSA	0.625	0.391	0.000	Y = 0.179X + 62.664

When the entry variable – BLEPT rating associations were compared according to specialization, some subtle differences has surfaced. IQ scores (r = 0.886) seems to be the best predictor of the BLEPT ratings of the GEE cohort, followed by GSA (r = 0.580), then HSGPA (r = 0.452). On the other hand, the entry variable that best associated with the BLEPT ratings of the ECED sub-group was their GSA (r = 0.625). Their HSGPA (r = 0.625) and IQ scores (r = 0.531) were also strongly correlated with their BLEPT ratings.

From the derived regression equation, one can predict a BEE graduates’ ratings in the BLEPT. To pass the BLEPT, for example, a BEE aspirant should have a HSGPA of at least 84.4, an IQ score of at least 99, and GSA of at least 69.

The entry variables – BLEPT ratings association among the BSE group are consistent with that of the BEE cohort. All three entry variables then could be taken as valid predictors of BLEPT ratings, as indicated by a significant correlation among these variables (Table 7).

Table 7. Coefficients of correlation and determination and regression equation among admission data and licensure examination (BLEPT) performance of the BEE participants

Admission Variables	r	r ²	p	Regression Equation
<u>BLEPT Gen.Ed. Rating</u>				
HSGPA	0.415	0.172	0.000	Y = 0.045X + 42.466
IQ	0.457	0.209	0.000	Y = 0.184X + 61.239
GSA	0.603	0.364	0.000	Y = 0.194X + 65.022
<u>BLEPT Prof.Ed. Rating</u>				
HSGPA	0.473	0.224	0.000	Y = 0.403X + 43.980
IQ	0.362	0.131	0.000	Y = 0.139X + 63.116
GSA	0.553	0.306	0.000	Y = 0.158X + 66.560
<u>BLEPT SP. Rating</u>				
HSGPA	0.227	0.052	0.002	Y = 0.319X + 50.486
IQ	0.285	0.081	0.000	Y = 0.136X + 63.646
GSA	0.304	0.092	0.000	Y = 0.125X + 67.924
<u>BLEPT General Rating</u>				
HSGPA	0.426	0.181	0.000	Y = 0.472X + 37.768
IQ	0.438	0.192	0.000	Y = 0.139X + 63.878
GSA	0.547	0.299	0.000	Y = 0.158X + 65.847

Similar with the BEE group, BLEPT and specific area ratings were best predicted by GSA, with about 30% of the variance in the general ratings being associated with this entry variable. Again, this result can be explained by the standardized nature of both NCAE and BLEPT. Also, GSA is best associated with Gen.Ed. ratings, and least associated with Sp.

ratings. Meanwhile, IQ scores and HSGPA came out as moderate predictors of BLEPT ratings. Incidentally, the order of the strength of association among predictor and outcomes variable is consistent in the two programs (BEE and BSE).

The association between entry variables and BLEPT ratings was not consistent across the different specializations. All entry variables were linearly associated with the BLEPT ratings of the Math and Phy.Sci., sub-groups, while only GSA significantly correlated with the ratings of the PEHMA, and TLE cohorts. Among the Values Ed, sub-group, strong but insignificant variable-ratings associations were noted for IQ scores ($r = 0.669$) and GSA ($r = 0.519$). The same observation was true for the Bio.Sci. group (r values are 0.783 and 0.565 for IQ and GSA, respectively), except that the relationship was linear for this sub-group. Further, only the HSGPA and GSA of the Filipino and SST sub-groups had linear associations with their BLEPT ratings. The strength of association, however, was stronger among the Filipino sub-group (HSGPA, $r = 0.627$; GSA, $r = 0.638$). For the PEHMA sub-group, the r values were 0.470 (HSGPA) and 0.405 (GSA). Finally, only HSGPA ($r = 0.360$) and IQ scores ($r = 0.509$) correlated significantly with their BLEPT ratings of the PEHMA sub-group.

Entry data – BLEPT ratings association was again inconsistent among the various BSE specializations. Such result might suggest a specific variable-GPA and BLEPT rating correlation analysis for the various BSE specializations.

From the given regression equations, a BSE graduate will pass the BLEPT if he/she has a HSGPA of at least 79, an IQ score of at least 80, and a GSA of at least 58. These values are far below the cut-off scores required of prospective entrants for teacher education in the case college.

In summary, the results show that in both groups, all entry variables can validly predict both college GPA and BLEPT ratings, including the area ratings and all subject GPAs of the BEE group. Only the Sp. GPAs of the BSE cohort did not associate linearly with the participants' entry data, save GSA. Moreover, in both groups, HSGPA came out to be the best predictor of CGPA, while GSA was best associated with BLEPT ratings.

The above result could be explained by the similar natures of the predictor and outcome variables. Both HSGPA and College GPA are both grades, obtained from various sources – class standing, projects, and examinations, etc. The nature of grades, according to Bowers (2011) and Brookheart, Guskey, Bowers, McMillan, Smith, Smith... & Welsh, 2016. (2016) is that they “are assigned based on potentially wide-ranging array of tasks, measured over time, capturing academic knowledge, skills, behaviors, and effort and incorporating teacher judgment.” Because they are based on a wide range of factors with judgments from many different teachers makes them potentially highly subjective across context. However, these multiple raters and the use of wide-variety tasks could in fact make them good and reliable indicators of the entrants' academic readiness for college (Allensworth & Clark, 2020).

Moreover, the ability of HSGPA to best predict CGPA is explained succinctly by Galla et al. (2019). This team of researchers were unanimous with prior investigators in considering the predictive validity of report card grades on college academic success as among “the sturdiest findings in social science” (Brookheart et al., 2016; Galla et al., p. 2079). This is despite the criticisms thrown on report card grades as being subjective, heterogeneous, and prone to school type effects (Allensworth & Clark, 2020).

The surprisingly higher prognostic power of high school grades on college academic success can be explained by the fact that college academic success requires not only cognitive ability but also by self-regulation (Galla et al. 2019). This self-regulation, as the authors noted in a follow-up study, are better indexed by high school grades. Self-regulation is defined in literature as a set of goal-directed motivational and volitional competencies (Davison & Hoyle, 2017). Under self-regulation are competencies including self-control: the ability to

act, think, and feel in ways that are more valuable in the long run than momentarily more alluring alternatives (Galla et al., 2019; Hofmann, Friese, & Strack, 2009).

Self-regulatory competence was reported to be crucial on academic success at all levels of schooling (Duckworth & Carlson, 2013). In cross-sectional studies involving high school learners, students with higher grades spend more time doing school work and less time on playing computer games or watching television. They are likely to come to class with their completed homework and learning materials (Willingham, Pollack, & Lewis, 2002). Such self-regulatory competencies are important this day and age where studying and completing homework is increasingly becoming less enjoyable than playing sports or computer games, watching television, or socializing with friends (Duckworth, Taxer, Eskreis - Winkler, Galla, & Cross, 2019).

The higher predictive ability of standardized test scores (GSA) on licensure performance could be explained by the fact that both the GSA and the BLEPT are standardized tests. Compared to grades, which are based on achievement and non-achievement factors, standardized tests are based solely on cognitive abilities (Galla et al., 2019). Cognitive abilities are also referred to as general intelligence or general mental ability (Gottfredson, 1997). There were evidences showing that scores in diverse tests of cognitive ability are highly intercorrelated (Jensen, 1998; Wai, Brown, & Chabris, 2018). Such association between several cognitive ability tests was supported by the result of this study.

The results on the differential predictive ability of HSGPA, ATS, and GSA scores bear important implications on the admission procedures and policies of the case college. The findings of this study can inform the decision on which should be given higher weight in the admission process, admission test scores or HSGPA. Also, the case college may now use the findings of this work to rationalize the requirement of GSA and other standardized test scores of entrants to the college of education. These documents may later be used in the selection of new entrants to the college, especially with the enactment of free college education in state-colleges and universities (SUCs) in the Philippines. Without established screening and admission procedures, or if screening procedures are not based on predictive validity results such as this, SUCs may not be admitting the entrants who are more likely to succeed in college or even pass the licensure examinations.

Another notable result is that the degree of association among entry variables and college and BLEPT performance varied slightly across specializations in the BSE program. This slight variation necessitates careful interpretation and generalizations on the findings of the study.

Conclusions and future directions

The entry data of the participants indicate that the teacher education graduates of SY 2014 - 2015 entered the case institution with necessary knowledge, competencies, and aptitudes they need to fulfill the academic demands of college life. Moreover, their high passing rates, and satisfactory licensure performance imply that the graduates have acquired from their institution the competencies and skills required of them as future teachers. Furthermore, all their entry data have significantly contributed to their college academic and licensure performance. In particular, the entry variables and outcomes which are of similar nature, i.e., High school GPA and College GPA, and GSA and BLEPT, have stronger associations.

The result of this study may be considered by policy-makers in the strengthening of admission procedures and policies. This is especially among state and local universities and colleges, who are expecting an influx of students as a result of a free college tuition fee act. Specifically, the admission office of the case institution should continue requiring the entrants

to submit their GSA or any standardized test results. Those involved in the selection process should consider these standardized scores in their screening procedures.

Similar studies may be replicated in other teacher-training institutions (TEIs) in the Philippines in order to substantiate the results of this study. If results were consistent across TEIs, then the teacher-education council of the Department of Education may consider institutionalizing a national policy on the recruitment and admission of prospective teachers in SUCs.

The limitation of the study is that it focused only on teacher education graduates. It did not include other degree programs with licensure examinations. It might be a worthwhile endeavor to include the graduates of other degree programs in future studies.

Also, this study did not factor out the effect of the type of high school on the entrants' HSGPA. Mediation studies of this kind is another area of research worth investigating. Finally, this study explored the predictive abilities of the admission variables separately, instead of looking at their combined effects on college academic and licensure performance. Interested researchers may consider doing a discriminant analysis to arrive at a formula that best predicts academic and licensure success.

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