Influence of IQ and Personality on College Students' Academic Performance In A Philippine State University

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Abstract

Several studies in the past determined variables that have significant impact on students' academic performance. The focus of the present study is to determine the influence of intelligence based on IQ and personality traits on students' academic performance. The study utilized the descriptive correlational method using a standardized questionnaire for data gathering. Respondents were students who were randomly selected from the College of Education and Bachelor in Industrial Technology. Data collected from the study were calculated with the use of SPSS version 22. Results showed that the respondents' level of personality in terms of the Five Big factors: creativity, resilience, achievement, agreeableness, and extraversion, are independent of their IQ level. The bivariate correlation analysis found that the students' performance through their GPA is moderately and positively correlated ($r = 0.67$) to their IQ level. For students' academic performance and personality, results showed that their traits of agreeableness and achievement were positively correlated with their performance to a low degree. In contrast, a negative correlation was shown between their academic performance and their creativity, extraversion, and resilience traits. Data from regression analysis further revealed that the respondents' intelligence (IQ) was the sole predictor of their academic performance; their personality traits have not influenced their academic performance.

Keywords: Psychology, IQ, personality, academic performance, University students.

INTRODUCTION

Academic achievement plays an essential part in students' future career opportunities (Chamorro-Premuzic & Furnham, 2008). In the Philippines, a student's success is usually measured by academic performance or how the student can meet the standard set by the institution. As defined by Narad and Abdullah (2016), academic performance is the knowledge and skills attained by students. It is generally assessed by grades given by teachers and the achievement of academic goals set by the academic institution. This has to be attained over a specific semester. Students' performance is evaluated by using examinations and other forms of assessment. . Students' academic performance serves as an essential indicator of the instructor's quality of instruction (Greenwald & Gillmore, 1998).

Grades also predict further academic success of an individual (Kyoshaba, 2009). Knowing which among the various factors predict academic performance is critical for educational institutions in the strategic planning to improve or maintain students' performance while studying in the university (Denny, R. M.M., and J. K. Denny, 2019). As competition grows ever more in the labor market, the importance of doing well in school has caught the attention of many people, including the government. Data from the CHED (2011, cited by Angara, 2012) revealed that enrollees in higher education institutions (HEIs) in the Philippines had reached 2.56 million. Along with this increase in enrolment, the number of dropouts also reached a dreadful 83.7 percent. This implies that the Philippines produces 2.13 million college students annually who dropped

out of school and were not able to finish their degrees and only 500,000 students graduated in their respective degrees. Students' academic performance is apparently important to students and the universities as it determines the success of their education system. Students' successful achievement by graduating from their respective college degrees provides vital proof that the students has achieved an important educational milestone which has great impact for their future career. Student achievement is also essential for the higher education institutions where they enrolled as it is a measure whether the institution's mission, vision and the effectiveness of their support services and educational programs offered have bearing to their students. Moreover, student academic success is vital to our present society and their families, which heavily rely upon well-educated people.

Recognizing the importance of student success, numerous studies have been conducted to examine the variables that could influence academic performance. Findings of previous studies provide solid evidence that students; academic success, as measured by their college grade point average (GPA), was significantly correlated with the students' high school GPA as well as with their scores in achievement tests. Several variables were identified as predictors relating to academic success Variables, such as study habits and learning skills were found to be of positive correlation with college academic performance. In contrast, students' behavior and non-intellectual characteristics such as hyperactivity and short attention span, which have been linked with students having attention deficit hyperactivity disorder (ADHD), are negatively associated with college GPA. In another study, by Chamorro-Premuzic & Furnham (2003). the academic performance and personality traits were examined not only at the super-trait but also at the primary trait level to find out its relationship.

Identifying the factors that influence academic performance among university students is vital in educational research (Kassarnig et al., 2018). Many practical studies are carried out to investigate different variables and factors affecting college students' performance.

(Mushtaq and Khan(2012 but surprisingly, only limited research focused on the interaction of college students' IQ and personality in relation to academic performance, especially in a public state university setting. Thus, this study is conducted for the purpose of determining the influence of IQ and personality on the academic performance of college students studying in a public university in the Philippines. Also, it further examines whether IQ and personality can predict students' academic success. The study results provide additional information on the existing body of literature on the different factors affecting educational achievement of college students. Findings of this study will be a good source of ideas for policy makers and program implementers to come up with policies and strategic plans for the enhancement of their students' academic performance.

Methodology

The study utilized a descriptive correlational research design using a standardized test to describe undergraduate college students' IQ level and personality traits in a public state university. Respondents of the study were students enrolled in the College of Education and Bachelor in Industrial Technology who voluntarily agreed to be the study's respondents. The participants of the study were randomly selected after permission was granted to look into the list of enrolled students in the registrar's office in each of the undergraduate programs mentioned. All students listed in even numbers were chosen as the participants of the study. Voluntary participation was assured by letting the participants sign an informed consent before the actual conduct of the study. There were 116 students who agreed to participate in the study, of which males composed 36.21% (N=116) while females comprised 63.79 % (N=74). The respondents were between the ages of 16 to 24 years old, majority of them were 19-22 years old (58%).

Two standardized test questionnaires were used as the main instruments in gathering data. The Manchester Personality Questionnaire (MPQ) Factor 14 version was used to determine the respondents' Big Five Personality Factors (agreeableness, creativity,

achievement, extraversion, resilience). The questionnaire is composed of short bi-polar statements and the respondents are made to choose for their response from the five point rating scale. The Otis Lennon School Ability Test (OLSAT) Level G was used to measure the respondents' IQ level. The respondents answered the questionnaire in paper and pencil form. Responses from the aforementioned questionnaires were analyzed and interpreted by a license psychometrician. Students' general point average (GPA) from the students' permanent records was used as a basis for students' academic performance. Data collected were calculated using licensed SPSS version 22 utilizing percentage, correlation, and regression analysis.

Results and Discussion

Correlation Among GPA, Personality Traits, and Intelligence

After data treatment, a bivariate correlation among the considered variables of personality and students' IQ level and GPA was done, as shown in Table 1. The data disclosed that students' performance through their GPA is moderately and positively correlated ($r = 0.67$) to their IQ level. This positive correlation would mean that students with high IQ performed better in the class than those with low IQ. It further depicts that students' academic performance is dependent on their IQ level since the result is significantly correlated ($p<0.05$) at a .01 level of significance. The result is somewhat analogous to He et al. (2020) study, which reveals that IQ is a significant predictor of academic performance. This is further supported by Quilez-Robres et al. (2021) study. Students with high levels of IQ scores performed much better on their educational performance assessments when supported by high levels of self-efficacy and motivation. Consistent with the results of previous research, there is a strong positive relationship between fluid intelligence and academic performance observed among students having high IQ (Guez et al., 2018). Using IQ tests can predict students' academic performance on customary academic activities and tasks better than practical real-world tasks or atypical, multifaceted everyday problems. However, results of several studies in the past

few decades indicated that Intelligence Quotient (IQ) alone is not a reliable factor in determining students' academic performance. Students' academic success can be ascribed to 20% IQ and the rest 80% to Emotional Quotient (Shresta et al., 2021). Results from Guez et al. (2018) revealed that other variables such as perceived self-efficacy, educational attainment of parents' school environment, and gender were found to be factors that most influenced academic performance of students irregardless of the students' non-verbal intelligence. In a longitudinal study, school environment and parents' educational level best predicted progression and academic performance, while intelligence quotient are of less significance.

. IQ seems to predict students' academic performance for a short time, just for the next year or two. Having high IQ scores is not an assurance in predicting high academic performance over the long run, especially when IQ tests are administered in the preschool or early elementary years (Bracken & Walker, 1997). Intelligent Quotient (IQ) was a significant and a stronger predictor to students, school achievement than self-control. In addition, research findings revealed that only intelligence factors predicted developmental changes in each measure of academic performance over the years (Vazsonyi et al., 2021). As students get older, the mental ability of the individual changes and thus their intelligence and IQ level also change. Extending the time gap between two measures of intelligence quotient, the greater the fluctuation in IQ level especially when initial measures were taken in the preschool years (Hayslip, 1994; Sattler, 2001). IQ scores and other assessments of mental ability often increase with age as children gain more experiences and become highly independent and motivated students and when parents and teachers provide stimulating activities and a variety of reading materials (Echols,et. al 1996; Sameroff et. al 1995).

The obtained result is probably due to the respondents' exposure to the assessment style. Because they are usually exposed to a type of test that objectively measures students' performance like identification and enumeration, these tests hasten only students' memorization ability. Hence it appears that

those who are good at memorization would also get a higher grade. And since traditional standardized tests usually measure IQ tests. It is not surprising that intelligence is a determinant of their academic performance in this group of respondents.

Table 1. *Correlation among GPA, Personality Traits, and Intelligence*

	GPA	Agreeableness	Creativity	Achievement	Extraversion	Resilience
GPA	1					
Agreeableness	.231*	1				
Creativity	-0.033	0.102	1			
Achievement	0.134	.238*	0.221	1		
Extraversion	-0.075	0.135	0.158	-0.144	1	
Resilience	-0.153	0.083	-0.152	0.13	0.057	1
IQ	.671*	0.145	0.045	.203*	-0.183	-0.147

As to students' performance and their personality, it was discovered that their traits of agreeableness and achievement were positively correlated with their performance in a low degree. In contrast, a negative correlation was shown between their performance and their traits of creativity, extraversion, and resilience. It implies that as the respondents tend to be more agreeable and achievers, their performance would get better as well, while as they tend to be more creative, extroverts, and resilient, they would perform poorly in the class. These results may be attributed to students' experiences in the teaching and learning process. Students' trait of agreeableness is portrayed by how obedient they are to their teachers and the classroom policy. They adhere to the standards set in the classroom. Thus they would excel in the class.

On the other hand, extroverted students may lose focus in their studies as they spend much of their time in activities unrelated to academics, like hanging out with their friends and others. Hence, it may be a reason for decreasing students' grades. Similarly, the result was obtained in the area of creativity. It shows that if students are more creative, they may have low performance, as shown in the result of a low negative correlation. Students who tend to be more creative may explore in their way, which probably contradicts the classroom standards or teachers' standards, resulting in a low grade. The study of Gustafsson (2008) revealed that academic performance has a significant relationship to both intelligence and personality. Roth et al. (2015) confirmed this finding recently, a meta-analysis involving 240 independent samples and 105,185 participants showed a positive strong relationship between intelligence and academic performance based on the general point average (GPA) of the students at the end of the semester as measured by different standardized intelligence tests. . However, the relationship between intelligence and academic performance differs somewhat according to the students' academic level. Findings of the same study further show that IQ varies from elementary years, to junior high school and senior high school . Findings from other researchers supported that intelligence and personality traits should be considered as predictors of academic performance (Chamorro-Premuzic & Furnham, 2005; Rindermann & Neubauer, 2001; Rothstein et. al , 1994) but none of those studies is adequate enough to support the claims.. Although there have been extensive studies on the direct relationship between students' personality characteristics and academic success (Chamorro-Premuzic & Furnham, 2005), the findings are not as conclusive as their study was either for the relationship between intelligence and academic success or on correlation between personality traits and academic achievement.

IQ and Personality Traits as Predictors of Academic Performance

A regression analysis was done to determine whether personality traits and IQ predictors students' academic performance. As seen in Table 2, respondents' intelligence (IQ) was the sole predictor of their academic performance, which means that the higher the students' IQ, the better their performance in school. Most studies on factors affecting academic

performance have observed how IQ positively correlates to an individual's academic performance (Cotruş et al., 2012, Hogan et al., 2010). Different IQ tests were used by academic institutions for admission purposes. Intelligence tests were developed primarily for the purpose of predicting the academic success of students (Ackerman & Heggestad, 1997). In the study of Neisser et.al (1996), the average correlation between IQ scores and grades of students is more or less 0.5 depending on the assessment tool employed.

The correlation between IQ and academic performance significantly declines with age. It is highest in elementary years and decreases in high school and college years (Jensen, 1980, p. 319). Pind, Gunnarsdo, and Johannesson (2003), emphasized that the decrease in the correlation between intelligence and academic performance is usually attributed by the constraint of range that occurs due to the smaller number of students enrolled in the upper level in universities.

Table 2. *Result of Regression Analysis*

Model		Unstandardized Coefficients		Standardized Coefficients	t	p-value
		B	Std. Error	Beta		
	(Constant)					
1	IQ	.012	.001	.649	8.886	.000
	CREATIVITY	-.094	.070	-.099	-1.344	.182
	AGREEABLENESS	.053	.026	.147	2.015	.046
	ACHIEVEMENT	.003	.029	.007	.093	.926
	EXTRAVERTION	.016	.026	.046	.623	.535
	RESILIENCE	-.055	.045	-.088	-1.219	.225

a. Dependent Variable: Grade

In contrast, the study conducted by Singh et al. (2016) revealed that learning facilities is the most important factor which has an impact on students' academic performance. This is followed by communication skills and proper guidance from parents. This could relate to Ali et al.'s (2013) findings wherein they found a significant correlation between age, guardian's social-economic status, and study hours with academic performance. The work of Duckworth and Seligman's (2005)also showed that students having self-discipline has profound influence, twice as much variance in academic performance than IQ in final grades, high school selection, school attendance, time spent making assignments, hours spent watching television (inversely), and the time of day students began their assignments. This contradicts the findings of Heaven and Chiarruchis (2012) that personality has a vital role in facilitating performance and learning of students in the classroom.. Findings further reveal that personality traits do not influence students' academic performance. The results may imply that although these personality traits have no direct bearing on their performance, they could affect them indirectly. Non-cognitive factors, such as an individual's

personality, can also influence academic performance regarding how motivated the student is to process and accumulate information (Furnham & Monsen, 2009).

Conclusion

The present results show that IQ was the sole predictor of college student's academic performance while personality traits do not influence their academic performance. However, there are certain limitations to consider in interpreting the findings of the study. . Results could be different for those students studying in private universities since the learning environment, and the socioeconomic status of their students differ from that of a state university. As such, they may not reflect the general perspective on the matter, so future research is recommended to determine the variations on the influence of IQ and personality traits between students in private and state universities.

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