



Predictive Ability of Noncognitive Factors on Academic Performance of Undergraduate Psychology Students

**Arjay Y. Alvarado ^{a*}, Ann Gei Sha R. Estosos ^a, Jaybie L. Jegan ^a
and Noren T. Nilles ^a**

^a *Department of Psychology, College of Arts and Sciences, Carlos Hilado Memorial State University, Talisay City, Negros Occidental, Philippines.*

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The ability to predict student performance creates opportunities to improve educational outcomes. Exploring the possibilities of measuring variables that could significantly influence the academic performance is fundamental to the realization of technological and scientific development, political, and socio-economic advancement, and success in life. This descriptive-relational study anchored on the Theory of Educational Productivity by Herbert Walberg utilized Multiple Regression Analyses to investigate the predictive ability of Adversity Quotient, Emotional Intelligence, and Personality on Academic Performance of Psychology students in a state college. Using convenience and quota sampling procedures, one hundred students (50 males and 50 females) were selected to participate in the study. Mean and standard deviation were used for descriptive analysis, Mann Whitney U test for comparative analysis, and Spearman Rho Correlation for relational analysis. Results revealed that collectively, the levels of Adversity Quotient, Emotional Intelligence, and Personality of the participants were "Average", while their Academic Performance was "Superior". No significant differences were noted among all the study variables regardless of their demographic characteristic. Emotional stability yielded a positive relationship with the academic performance of participants and predicted 51.8% of the increase in their academic performance. Moreover, empirical evidence suggests mentorship is effective in fostering the student's emotional stability.

*Corresponding author: E-mail: alvarado.arjay.y@gmail.com;

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1. INTRODUCTION

Pursuing a college education is undeniably a demanding phase in a student's life. Although not everyone is expected to perform best at school, given the link between education and economy, high academic performance is generally perceived as ideal [1]. A good academic performance is desirable not only for the individual alone but also to the societies and associated economies. Kapur [2] highlighted that education instilling critical skills, abilities, and knowledge is a vital component that leads to individual, community, and national growth and progress. A balance between psychological well-being and cognitive capacity plays an equal importance in academic thriving and success. Relevant studies in the past revealed that students who struggle to manage stress have a significant impact on their academics and behavior [3]. Because of this, students must maintain a healthy physical, emotional, as well as psychological well-being to thrive in education [2].

The outbreak of the COVID-19 termed pandemic by the World Health Organization (WHO) in March 2020 disrupted the global educational system with the implementation of closure of all educational institutions in an attempt to contain the spread of the pandemic [4]. Wang and colleagues [5] pointed out that there is an increase in levels of stress of the students and the biggest contributor was related to academics indicating difficulty in concentrating, fear, worry about academic progress and performance, and adjustment to distance learning as dominant academic concerns. Students may experience the loss of self-discipline or an unfavorable learning environment while studying isolated at home, for example [6], creating a feeling of work overload and increased stress. Despite the innovations on the alternative learning mode and technologically driven education made by the Higher Education Institutions, the Philippines need to set clear policies and guidelines in delivering the new model of education to keep up with the global standard [7].

The aptness in predicting student's performance creates opportunities to ameliorate educational outcomes [8]. While IQ tests are well-known for their ability to predict academic success [9], some recent studies argue on other factors that significantly predict the academic performance of

students more than the IQ. Several research inquiries have been conducted over the past years on predicting student performance seeking to determine interrelated features and to identify the underlying reasons why certain features in regarding academics work better than others [8]. Exploring the possibilities of finding variables that could significantly influence academic performance such as Adversity Quotient®, Emotional Intelligence, and Personality would be a breakthrough to help advance the education section especially in fostering the learner's ability in the classroom.

Though there had been several studies conducted on what predicts academic performance, most studies are conducted are foreign and/or were conducted during the pre-pandemic times. This study however sought to determine if generalizations on the existing knowledge can apply to the learners in the Philippines.

Given the context embarked by the researchers on the study, with the intent to investigate the predictive ability of Adversity Quotient®, Emotional Intelligence and Personality on the Academic Performance of the BS Psychology students enrolled at Carlos Hilado Memorial State College. This study hopes to fill the gap in knowledge to on the topic of concern especially in the Filipino setting. Specifically, it sought to answer the following questions [10]:

1. What is the demographic profile of the participants?
 - a. sex
2. What is the is the participant's level of:
 - a. Adversity Quotient® in terms Control, Origin, and Ownership, Reach, Endurance;
 - b. Emotional Intelligence;
 - c. Personality in terms of Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability;
 - d. Academic Performance; when taken as a whole and when grouped according to sex?
3. Is there a significant difference in the participant's level of Adversity Quotient®, Emotional Intelligence, and Personality, and Academic Performance when grouped according to sex?

4. Is there a significant relationship in the participant's level of AQ® of the participants in terms of CORE (Control, Ownership, Reach, Endurance), EI, and Personality (Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability) and their Academic Performance?
5. Do the level of AQ®, EI, and Personality of the participants predict their Academic Performance?
6. What program can be developed based on the results of the study?

Given the inferential and relational objectives of the study, the following null hypotheses has been formulated:

1. There is no significant difference in the participant's level of Adversity Quotient® in terms of CORE (Control, Ownership, Reach, Endurance); Emotional Intelligence, and Personality (Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability), and Academic Performance when grouped according to sex.
2. There is no significant relationship in the participant's level of AQ® in terms of CORE (Control, Ownership, Reach, Endurance), EI, and Personality (Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability) and their Academic Performance.
3. The AQ®, EI, and Personality of the participants do not predict their Academic Performance

This study is anchored to the psychological theory of educational productivity of Herbert Walberg [11]. The theory highlights interacting factors behind student academic preparation. According to Walberg's theory, cognitive, behavioral, and attitudinal learning outcomes are influenced by individual students' psychological characteristics and the psychological settings around them [12]. Student aptitude variables would include (1) ability/prior achievement, (2) development/stage of maturation, and (3) motivation/ self-concept as indicated by personality. Instructional variables, on the other hand, would include the (4) quantity of instruction about the number of times students engage in learning and (5) quality of instruction as the psychological and curricular aspects. Finally, an

educationally stimulating environment encompasses the home, school, peer-group, and the mass media as a variable that could influence the student's performance. Any of the variables can significantly alter the student's performance, abilities, and drive.

Apart from its theoretical value, there is considerable practical value in being able to statistically predict academic performance. The Manila Times reported that the Philippine Government allocates the highest budget allocation to the education sector which includes Dep Ed, SUC, and CHED with P788.5 billion, P36.8 billion higher compared to the 2021 budget. The academic performance of students is highly valued such that any increments in the understanding of academic performance have substantial implications. Academic performance in university or educational institutions is a measure of accomplishment or success of a student by the standards set or required by the institution where a student belongs.

Adversity Quotient® has a positive correlation with academic success [13,14,15,16]. It confirms that students with a greater Adversity Quotient® level outperformed those with a lower Adversity Quotient® level academically. In a difficult situation, students with high AQ® have greater influence and control. They are adept at recognizing and dealing with problems, as well as determining the best course of action for resolving them, all of which lead to improved academic achievements and the quality of graduates.

The majority of studies on emotional intelligence reveal that there is a correlation between academic performance and emotional intelligence [17,18,19,20,21]. Emotional intelligence was observed to be higher among successful students. The positive relationship might be explained by the fact that learners who can recognize their own and others' emotions are better able to maintain self-control and successfully navigate scholastic difficulties. Students will be able to build academic competencies as a result, resulting in improved learning outcomes. Emotional intelligence has a negative relationship with academic anxiety and procrastination, emphasizing the relevance of emotional intelligence in stress management and the promotion of high-quality education.

In terms of personality, some research found that conscientiousness is the single key personality

characteristic that influences and predicts academic achievement. Conscientious students are organized, self-disciplined, and have a strong desire to succeed. While recent studies reveal the personality traits of openness, agreeableness, and extraversion [22,23,24] also correlate with better academic performance. Research endeavors focused on determining variables that predict academic performance showed emotional stability is predictive of academic performance [25,26,27]. The individual relationship of the variables to academic performance has been identified however, there is a scare in studies Negros Occidental that assessed if these non-cognitive variables predict academic performance in BS Psychology students. Thus, to fill the gap in the literature context-specific research is required to continue to demonstrate these outcomes and identify among AQ, EI, and Personality the variable that best predicts students' academic performance. This research may reveal novel information that can benefit not only students, but also parents, instructors, and academic institutions in promoting appropriate support services for the students to improve students' non-cognitive abilities and academic performance.

2. METHODOLOGY

This study utilized a descriptive-correlational research design. According to McCombes [28], a descriptive research design aims to describe a population, phenomenon, or situation. In addition, the goal of correlational research is to find connections between two or more variables in the same population or between the same variables in two different populations (Leedy & Ormrod 2010).

The total sample of 100 participants of which 50 are males and 50 are females, which were determined using convenience sampling. As emphasized by Etikan, et al. [29] this sampling technique is a non-probability sampling commonly used in quantitative studies, useful when randomization is unattainable and participants are willing to participate in a study. Thus, those who have the availability and willingness to accept the researchers' request to take part are the participants of the study.

The level of adversity quotient of the participants was measured using the Adversity Quotient® profile version 10.5 developed by PEAK Learning led by Dr. Paul G. Stoltz. In scoring the AQ® Profile scores, a participant who scored 177-200

have high Adversity Quotient®, 165-176 AQ® score are interpreted as above average, a145-164 AQ® scores are on the level of average, 134-144 AQ® scores is considered below average and 40-133 AQ® scores is interpreted as low.

The Schutte Self-Report Emotional Intelligence Test (SSEIT) by Schutte et al., [30] was used to measure the level of emotional intelligence. In scoring the scale, reverse coding items 5, 28, and 33 yields total scale scores, which are then added together. Scores on the scale from 33 to 165, with higher scores implying a higher level of emotional intelligence [30] and mean scores of less than 111 or greater than 137 are considered unusually low or high.

Moreover, the personality type of the participants was assessed using the International Personality Item Pool Big-Five Factor Markers was employed and to determine the academic performance of the students. The scale for the IPIP differs on each trait and are as follows: Intellect or imagination: 1.90-2.86 Low, 2.87-3.82 Average, and 3.83-4.80 High; Conscientiousness: 2.10-2.92 Low, 2.93-3.74 Average, and 3.75-4.60 High; Extraversion: 1.20-2.32 Low, 2.33-3.44 Average, and 3.45-4.60 High Agreeableness: 2.30-2.13 Low, 3.13-3.93 Average, and 3.94-4.80 High; Emotional Stability: 1.20-2.29 Low, 2.30-3.38 Average, and 3.39-4.50 High.

In addition, to measure academic performance, the Grade Point Average or GPA was used. Based on the grading system of Carlos Hilado Memorial State College, a grade of 95-100 is remarked as excellent, 90-94 is superior, 85-89 is very good, 80-84 is good, 75-79 is fair passing, and 65-74 is failed. In this study, each respondent will be asked about their self-report GPA of the first and second semester of the Academic Year 2019-2020. This serves as the basis for their academic performance.

In analyzing the data, the mean and standard deviation was used to determine the participant's Adversity Quotient® (AQ®) in terms of CORE: Control, Ownership/Origin, Reach and Endurance; Emotional Intelligence (EI); Personality in terms of Intellect/Imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional Stability.; and the Academic Performance of the participants when taken as a whole and when grouped according to sex. Mann-Whitey U test was used to determine if there is a significant difference in the Adversity

Quotient® (AQ®) in terms of CORE; Emotional Intelligence; Personality; and the Academic Performance of the participants when taken as a whole and when grouped according to sex. Spearman's rho correlation was used to determine if there is a significant relationship

between the AQ®, EI, and Personality of the participants and their Academic Performance. Multiple regression analysis was used to determine if AQ®, EI, and Personality of the participants predict Academic Performance.

3. RESULTS AND DISCUSSION

Table 1. Distribution of the participants

Sex	Frequency	Percentage
Male	50	50%
Female	50	50%

Table 2. The participant's level of Adversity Quotient® when taken collectively and when grouped according to sex

Adversity Quotient®	M	SD	Interpretation
Control (whole)	36.51	4.613	Average
Male	36.42	4.536	Average
Female	36.60	4.734	Average
Ownership (whole)	38.58	7.447	Average
Male	38.04	7.031	Average
Female	39.12	7.858	Average
Reach (whole)	21.63	5.076	Below average
Male	22.32	5.531	Below average
Female	20.94	4.528	Below average
Endurance (whole)	32.97	7.019	Average
Male	32.42	6.128	Average
Female	33.52	7.833	Average
Whole	129.55	13.695	Average

Results of the study revealed that when taken collectively, the participants scored average in Adversity Quotient® (M=129.55). This implies that the participants have an average capacity to face and overcome adversities in life. The manner someone reacts to situations, conditions, difficulties, and emotions has an impact on how they solve challenges. Someone who views adversity as an opportunity to grow will be motivated and persistent in overcoming their obstacles (Dina et al., 2018). Meanwhile, someone who views challenges as danger will fail, leading to dissatisfaction and uncertainty (Astri & Latifah, 2017).

Table 3. The participant's level of Emotional Intelligence when taken collectively and when grouped according to sex

Sex	N	M	SD	Interpretation
Male	50	130.62	13.50	Average
Female	50	127.70	12.47	Average
Whole	100	129.16	13.01	Average

Results reflect that the emotional intelligence of the participants when taken collectively (M = 129.16) was Average, as grouped according to sex, the mean value of the male (M = 130.62) participants is higher than the mean value of the female (M = 127.70) group of participants, however, both have average emotional intelligence. Generally, the participants can navigate their emotions well in a manner that it does not cloud their judgments.

Table 4. The participant's Personality when taken collectively and when grouped according to sex

Personality	N	M	SD	Interpretation
Intellect or imagination				
Male	50	3.57	0.44	Average
Female	50	3.53	0.57	Average
Whole	100	3.55	0.51	Average
Conscientiousness				
Male	50	3.39	0.59	Average
Female	50	3.43	0.59	Average
Whole	100	3.41	0.59	Average
Extraversion				
Male	50	3.00	0.71	Average
Female	50	2.77	0.86	Average
Whole	100	2.89	0.79	Average
Agreeableness				
Male	50	3.86	0.43	Average
Female	50	3.90	0.86	Average
Whole	100	3.88	0.49	Average
Emotional Stability				
Male	50	2.73	0.67	Average
Female	50	2.88	0.86	Average
Whole	100	2.81	0.77	Average

The Personality of the participants in terms of Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability, when taken as a whole and when grouped according to sex was **"average"**, neither male nor female scored low or high on personality traits.

Table 5. The participant's level of Academic Performance when taken collectively and when grouped according to sex

Sex	N	M	SD	Interpretation
Male	50	92.44	1.73	Superior
Female	50	93.05	1.06	Superior
Whole	100	92.75	1.46	Superior

The level of academic performance of the participants when taken as a whole and when grouped according to sex was **"Superior"** on both male and female.

Table 6. The difference in the level of AQ® of the participants when grouped according to sex

Adversity Quotient®	M	Df	t	p
Control				
Male	36.42	98	0.194	0.846
Female	36.60			
Ownership			<i>U</i>	
Male	38.04	98	1391.00	0.332
Female	39.12			
Reach			<i>t</i>	
Male	22.32	98	-1.365	0.332
Female	20.94			
Endurance			<i>t</i>	
Male	32.42	98	0.782	0.436
Female	33.52			

Note: Not significant

There was no significant difference in the level of AQ® of the participants in terms of CORE (Control, Origin, and Ownership, Reach, Endurance) when grouped according to sex. The researchers failed to reject the null hypothesis that there is no significant difference in the level of AQ of the participants when grouped according to sex.

Table 7. The difference in the level of EI of the participants when grouped according to sex

Sex	M	df	U	P
Male	130.62			
Female	127.70	98	991.00	0.074
Whole	129.16			

Note: Not significant

There was no significant difference in the level of Emotional Intelligence of the participants when grouped according to sex. The researchers failed to reject the null hypothesis that there is no significant difference in the level of EI of the participants when grouped according to sex.

Table 8. The difference in the Personality of the participants when grouped according to sex

Personality	M	df	T	P
Intellect or imagination				
Male	3.57	98	-0.352	0.726
Female	3.53			
Conscientiousness				
Male	3.39	98	0.390	0.697
Female	3.43			
Extraversion				
Male	3.00	98	-1.461	0.147
Female	2.77			
Agreeableness				
Male	3.86		1337.00	0.550
Female	3.90			
Emotional Stability				
Male	2.73	98	1.008	0.316
Female	2.88			

Note: Not significant

There was no significant difference in the Personality of the participants in terms of Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability when grouped according to sex. Emotional stability appears to be the only factor appearing significant values. Therefore, the researchers failed to reject the null hypothesis that there is no significant difference in the Personality of the participants in terms of Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Emotional stability when grouped according to sex.

Table 9. The difference in the Academic Performance of the participants when grouped according to sex

Sex	M	df	U	P
Male	93.05			
Female	92.44	98	1484.50	0.106

Note: Not significant

There was no significant difference in the level of Academic Performance of the participants when grouped according to sex. The researchers failed to reject the null hypothesis that there is no significant difference in the level of Academic Performance of the participants when grouped according to sex.

Table 10. Relationship in the AQ® of the participants and their academic performance

Variables	df	<i>r_s</i>	<i>P</i>
Academic Performance			
Control	98	0.115	0.256
Ownership		0.004	0.968
Reach		0.054	0.592
Endurance		0.090	0.373

Note: * *p* < 0.05 significant

There was no significant relationship in the level of AQ® of the participants in terms of CORE (Control, Origin, and Ownership, Reach, Endurance) and their Academic Performance. The researchers failed to reject the null hypothesis that there is no significant relationship in the level of AQ® of the participants in terms of CORE (Control, Origin, and Ownership, Reach, Endurance) and their Academic Performance.

Table 11. Relationship in the EI of the participants and their academic performance

Relationship	Df	<i>r_s</i>	<i>P</i>
Emotional Intelligence * Academic Performance	98	0.072	0.479

Note: * *p* < 0.05 significant

Results reflect that there was no significant relationship between the level of Emotional Intelligence and the Academic Performance of the participants. The researchers failed to reject the null hypothesis that there is no significant relationship between the level of EI of the participants and their Academic Performance.

Table 12. Relationship in the personality of the participants and their academic performance

Relationship	Df	<i>r_s</i>	<i>P</i>
Academic Performance			
Intellect or imagination	98	0.036	0.725
Agreeableness		0.012	0.907
Conscientiousness		-0.019	0.848
Emotional Stability		0.276*	0.005
Extraversion		0.036	0.725

Note: * *p* < 0.05 significant

Results of the study reflects that there was no significant relationship between participants academic performance and the participants intellect or imagination agreeableness conscientiousness and extraversion at 0.05 level of significance. However, values incurred imply that there was a positive relationship between participants academic performance and emotional stability at 0.05 level of significance. As the study reflects, only emotional stability appears to have a significant relationship with academic performance. Furthermore, the researchers failed to reject the null hypothesis that there is no significant relationship in the Personality of the participants in terms of Intellect or imagination, Conscientiousness, Extraversion, Agreeableness, and Academic Performance.

Table 13. AQ®, EI, and personality of the participants predict their academic performance

Model		Unstandardized	SED	Standardized	t	p
H ₁	Constant	90.733	2.076		43.701	< .001
	Control	0.035	0.035	0.110	0.991	0.325
	Ownership	-0.005	0.021	-0.026	-0.248	0.805
	Reach	0.017	0.033	0.060	0.521	0.603
	Endurance	-0.003	0.024	-0.014	-0.122	0.903
	Emotional Intelligence	0.021	0.014	0.188	1.558	0.123

Model	Unstandardized	SED	Standardized	t	p
Extraversion	-0.194	0.207	-0.105	-0.937	0.351
Agreeableness	-0.374	0.352	-0.124	-1.061	0.292
Conscientiousness	-0.578	0.298	-0.232	-1.939	0.056
Emotional Stability	0.518	0.235	0.273	2.207	0.030
Intellect or imagination	0.127	0.351	0.044	0.362	0.718

Emotional stability ($p = 0.030$) among the students' personalities can predict the academic performance and none from the adversity quotient® and emotional intelligence at 0.05 level of significance. The equation model will be: Academic Performance = $90.733 + 0.518$ (Emotional Stability). This implies that an increase of 1 score in emotional stability will increase academic performance by 0.518. As presented in the result of the regression model, the overall variables account for a 71.8% increase in academic performance, in which 51.8% of the variability is predicted by emotional stability. Moreover, the remaining 28.2% percent is accounted to factors other than the variables included in the present study.

4. CONCLUSION AND RECOMMENDATION

The results of the study revealed that Emotional Stability appears to be a significant predictor of academic success among Psychology students. Emotional stability is defined as the calmness with which one thinks, feels, and behaves. Being emotionally stable allows the students to develop a balanced perception, and prevent negative judgments to cloud their reasons with regards to their academics and life, in general.

Students may benefit from emotional stability training to properly manage stressful situations while optimizing learning during their school experience. Emotional stability is defined as having a low level of negative affect while maintaining a high quality of life (Kotov et al., 2010; Steel et al., 2008). Moreover, empirical evidence suggests mentorship is effective in fostering the student's emotional stability [31].

Based on the findings of the study, the following are recommended:

Students: Students are encouraged to take steps to develop their emotional stability which may bring a positive impact on their academic performance.

Teachers: The teachers may acknowledge the need to integrate classroom activities that focus

on the nourishment of the emotional intelligence aspects of students and help improve their academic performance.

Guidance Counselors and/or School Psychologists: A planned program was recommended as a basis for a student-oriented services program focused on the emotional stability that could help improve the student's academic outcomes.

School Administrators: It is suggested that the school be incorporated as a school program that focuses on the nourishment of the emotional stability of students and helps improve their academic performance.

School Heads: It is recommended that the education department should consider implementing educational programs about enhancing the emotional stability of the students which had a significant influence on their academic performance.

Researchers: The researchers are encouraged to conduct further studies on other factors that can improve a student's academic performance, so the learning content and learning interventions are in line with the needs of the students.

Future Researchers: The results of the study may be used as baseline data for future inquiries. Knowledge should be expanded not only among the psychology students but the students but for a larger population. Other study variables are highly encouraged to be included.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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