

# INVESTIGATING THE IMPACT OF INTELLIGENCE QUOTIENT ON ENGLISH ACHIEVEMENT AND APSA RESULTS AMONG LEARNERS

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## ABSTRACT

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Intelligence Quotient is a measure of a mental/functional age over the chronological period. IQ can be used to predict the academic success of the students in school but never in their life as a whole (Orloff, 2008). This study investigated the relationship of the learners' IQ to their achievement level in English and APSA results. Ninety-one intermediate learners from the University of Bohol Victoriano D. Tirol Advanced Learning Center in the academic year 2018 – 2019, were included in the study by random selection. It utilized the quantitative research method and employed documentary analysis of

the student's existing records. The statistical treatments used were: frequency, percentage, rank, mean, Pearson Product-Moment Coefficient of Correlation, and T-test. The results revealed that the IQ test results and the achievement level in English, IQ test and APSA results in English, achievement level and APSA results in English significantly correlated. Students who performed better on the IQ test had higher achievement levels in English; students



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with higher achievement levels in English also got higher APSA ratings; and students with higher IQ test results performed better in the APSA. However, it was found out that there is a need to improve the performances of the intermediate learners in terms of their IQ, achievement level, and APSA results in English to a higher level.

## INTRODUCTION

Intelligence is the capacity of the mind to understand from experiences and adjust to any circumstances, perceive vague ideas, and apply acquired information to survive in one's surroundings. A wary combination of these processes may lead to a purposeful and productive adaptation in coming up with the environment.

Humans differ in how they learn and think. Testing the intelligence quotient of the learners would be a way to measure their intellectual abilities. The learner's intelligence is believed to be a reliable predictor of their academic success. The IQ of a person matters as it is regarded to predict his/her intellectual ability to learn and the limits of academic performance. Linking these two creates a major impact on school grades. A learner with a high IQ can be strengthened further based on his academic performance. Thus, it reveals a positive association. On the other hand, a learner with a low IQ can also be tested further based on his school grades.

A person with a low IQ score is likely to perform less in education better than a person with a high IQ score (Gunderson et al., 2001). Students who score high will yield more exceptional accomplishments in school since IQ has a relative impact on the academic achievement of the learners. Students who scored low can achieve less based on the preliminary assessment of their intelligence. Vygotsky (1978) has closely associated the cognitive development to education (Sternberg et al., 2001). Intelligence is regarded as a very significant variable in education.

Aside from testing and measuring the intelligence quotient of the students, standards-based assessment (SBA) was also used to measure students' achievement. This standardized test aims to identify students' progress and if they met the required standards at their level in English.

The primary thrust of the study was to determine the impact of intelligence quotient on English achievement and APSA results among learners. The output of the study would prove that the intelligence quotient (IQ) of the learners is a good predictor of school learning. The use of TOGRA as a predictor of learners' academic achievement and a tool to measure their IQ will be verified. It may also serve as a basis for proposing measures that would help to improve the achievement level of the learners.

**Related Literature.** The intelligence quotient (IQ) range tells that the score will vary within the scale. IQ test scores are computed based on comparisons

with other students. Students' IQ scores show their IQ ranks compared to the norm group. IQ tests are standardized tests and are used to measure the mental capacity of an individual. It measures mental skills and abilities. How the mind processes quickly may affect one's performance in the intelligence test (Leighton, 2010). From a hypothetical standpoint, the study addresses the necessity to better understand how the intelligence quotient level of the learners affects their academic performance.

Test of General Reasoning Ability (TOGRA) measures the reasoning ability and problem-solving of the students. The test assesses verbal and nonverbal and other cognitive processes. The assessment of the students' IQ would help educators know more about their mental capacity, especially during the teaching and learning process as students show their strengths and weaknesses in different fields of education. These will help them enrich their strategy and learning plans to better suit the needs of the students.

Moreover, the achievement level of the students refers to their educational attainment learned over time (Tian and Sun, 2018). It reflects the intellectual endeavors or mental ability of a person. Evaluating student achievement can be measured using the grade point average (GPA) or by standardized assessments (IJIP In. 2016). Students are assessed based on the expected attainable cognitive goals in every learning area. The students' IQ would determine how easy or difficult it would be for them to achieve these goals. It is also a determining factor of how well their performance is in a standard-based assessment. This kind of assessment provides feedback to students and schools based on the assessment results that may suggest revisiting the curriculum for improvement and effectiveness of its instruction against school, national, and international norms. It also informs students of the level of their learning and assesses their ability to prepare.

**Related Studies.** Intelligence quotient is believed to be a predictor of academic achievement of the students. Medallon (2011) found out in the results of her study that the use of OLSAT as an entrance examination is a valid predictor of the performance of incoming students to college. The result showed a high degree of positive correlation, which also indicates the examination material's capability to project the grades of the students in their first semester of schooling.

S. D. Kulkarni et al., (2010) concluded that intelligence has no relation whatsoever with the academic performance of school children, but children with average IQ can fare well in studies. Conversely, "above average" children, may not get the grades expected of them. On the other hand, from the studies examined by Fuchs & Young (2006), they concluded that IQ was statistically a significant predictor. Cadao-Esperal (2016) has proven that the use of Otis-Lennon School Ability Test scores (OLSAT) is a good predictor of the academic performance of the students. It added significant value to the predictive validity and reliability of using standardized mental ability tests

and previous academic performance reports in predicting academic success. Samonte (2009) also agreed that the HS Math Grade Point Average and Otis-Lennon Scholastic Aptitude Test (OLSAT) results of students significantly predicted College Algebra achievement. A similar study conducted by Cataquis & Daitol (2012) has shown that the results of the entrance examination using OLSAT could be used to predict the performance of freshmen students. Ocbian et al. (2015) conducted a thorough analysis of the data that showed that secondary students have higher performance on the admission test as compared to their GPA on English subjects while college students have a higher GPA in English than their admission test results. Given these results, they concluded that the admission test results have a direct relationship with their performance in the English subject. Tias et al. (2015) concluded in their study that the intelligence quotient variable (IQ) has a strong correlation with the biological achievement of senior high school students. The academic achievement can be anticipated based on the intellectual quotient. Based on the size of the contribution, the intelligence quotient (IQ) significantly affects students' achievement, in which students having a high level of intelligence are likely to get higher academic achievement. Students who have a low level of intelligence are low in academics. Villegas (2012) conducted a study and found that there was no relevance between the achievement test of nurse graduates and their academic performance. However, the study revealed that the achievement tests especially the IQ, and the reading comprehension element have a significant relationship to the board examination performance. Ardilla et al. (2000) found out few significant correlations between the Wisconsin Card Sorting Test (WISC-R) scores and executive function measures. The correlations were low, even though they were significant. The results assumed that traditional intelligence tests do not appropriately measure executive functions. A conclusion has been made either to include executive functions as elements of "intelligent behavior," or that psychometric intelligence tests are insufficient in testing for intelligence. Salustiano (2013) in her study about the correlation analysis of performance in the college admission test, nursing aptitude test, general weighted average, and nurse licensure examination of nursing graduates found that the admission test and aptitude test had a positively strong relationship. However, the admission test and general weighted average had a significant but weak relationship. She also concluded that there is a significant moderate relationship between the college admission test and nurse licensure examination, between the nursing aptitude test and the general weighted average, and between the nursing aptitude test and nurse licensure examination. The general weighted average and nursing licensure examination scores had a significant inverse moderate relationship. Gumobao (2018) conducted research that utilized the Group Embedded Figure Test (GEFT) and Asian Psychological Services and Assessment (APSA) results of the students. Based on the findings of the study, the cognitive style of grade 6 students in Davao City was field-dependent, and the result of the APSA

English achievement test showed that students were progressing toward the standard.

## **RESEARCH METHODOLOGY**

This study utilized the quantitative method of research and employed documentary analysis as to the existing records of the students in the IQ test result using TOGRA, the English achievement level as reflected in school form 138, and the APSA test results for the school year 2018-2019. By utilizing the quantitative correlational method, the researcher was able to determine the direction and strength of the relationship between variables without manipulating the data-gathering procedure. The respondents for this study are the intermediate learners (grades 4 to 6 students) of the University of Bohol Victoriano D. Tirol Advanced Learning Center for the SY 2018-2019. From a total of 599 students, a random sample of 91 respondents was selected with a five percent error margin at a 95% confidence interval. To ensure safety and no harm will happen to the respondents, the researchers underwent an ethics review from the ethics review committee of the University of Bohol, and the UBREC reviewed the protocol. A study permit was secured, including signatories from the Vice President of Academic Affairs, the Dean of the Graduate School, the Principal of UB VDTALC, the guidance counselor, and the Research subject adviser. After the signed approval, the researchers gave the respondents consent for their parents to allow their children to be part of the study by stating the researcher's identity and the purpose of the study. Once consent was given, the researcher gave the assent form to the respondents. The data gathered were coded, interpreted, and analyzed statistically. The researcher observed privacy and confidentiality, assured that the gathered data were utilized for research purposes only, and conducted ethical considerations throughout the research.

## **RESULTS AND DISCUSSIONS**

Intelligence is the capacity of the mind to understand from experiences and adjust to any circumstances, perceive vague ideas, and apply acquired information to survive in one's surroundings. Hence, the data in Table 1, on intelligence quotient (IQ) and academic achievement in Table 2, reveal a contrast between cognitive abilities and performance in English. Most learners in both Grade 5 and Grade 6 score in the Below Average range on IQ tests, with mean scores of 82.67 and 85.35, respectively. A significant percentage of students also fall into the Moderately Below Average and Significantly Below Average IQ categories. Despite this, many students excel in English, with over half achieving Outstanding or Very Satisfactory ratings. This suggests that factors beyond IQ, such as motivation or instructional quality, may significantly influence their success in language arts. A wary combination of

these processes may lead to a purposeful and productive adaptation in coming up with the environment.

However, the APSA results in table 3, indicate that a majority of learners are still Progressing Towards Standards in their academic performance overall with an average of 54.95% combination of grade 5 and grade 6 learners, particularly of English. This suggests that while students may excel in specific areas, like English, they may still need additional support to meet academic expectations in other subjects. The results highlight the importance of tailored instruction and interventions, especially for students with lower IQ scores, to help bridge performance gaps across various academic domains.

**Table 1.** *Intelligence Quotient Test Results (TOGRA) of Intermediate Learners*

Rating Description	Grade 5 N=57			Grade 6 N=34			Average		
	F	%	Rank	F	%	Rank	F	%	Rank
Significantly above average >129	1	1.75%	5	0	0%	6.5	1	1.10%	5.5
Moderately above average 120-129	0	0%	6.5	0	0%	6.5	0	0%	7
Above Average 110-119	0	0%	6.5	1	2.94%	5	1	1.10%	5.5
Average 90-109	18	31.58%	1	12	35.29%	1	30	32.96%	1
Below Average 80-89	13	22.81%	2.5	9	26.47%	2	22	24.18%	2
Moderately below average 70-79	13	22.81%	2.5	8	23.53%	3	21	23.08%	3
Significantly below average <70	12	21.05%	4	4	11.77%	4	16	17.58%	4
Mean	82.67(Below Average)			85.35(Below Average)			83.67(Below Average)		
Frequency above mean	29			15			45		
Frequency below mean	28			19			46		

**Table 2.** *Achievement Level in English of Intermediate Learners*

Rating/ Description	Grade 5 N=57			Grade 6 N=34			Average		
	F	%	Rank	F	%	Rank	F	%	Rank
Outstanding O 90-100	28	49.12%	1	22	64.70%	1	50	54.95%	1
Very Satisfactory VS 85-89	19	33.33%	2	7	20.59%	2	26	28.57%	2
Satisfactory S 80-84	10	17.55%	3	5	14.71%	3	15	16.48%	3
Fairly Satisfactory FS 75-79	0	0	4.5	0	0	0	0	0	4.5
Did Not Meet Expectations DNME <75	0	0	4.5	0	0	0	0	0	4.5
Mean	89.33 VS			90.47 O			89.76 O		
Frequency above mean	28			20			50		
Frequency below mean	29			14			41		

**Table 3.** *APSA Results of Intermediate Learners*

Rating/ Description	Grade 5 N=57			Grade 6 N=34			Average		
	F	%	Rank	F	%	Rank	F	%	Rank
Highly Proficient HP 90 – 110	3	5.26%	4	2	5.88%	3.5	5	5.49%	4
Proficient P 80-89	16	28.07%	2	13	38.24%	2	29	31.87%	2
Progressing Towards Standards PTS 70-79	33	57.90%	1	17	50.00%	1	50	54.95%	1
Does Not Meet Standards DNMS Below 70	5	8.77%	3	2	5.88%	3.5	7	7.69%	3
Mean	76.91(PTS)			79.15 (PTS)			77.75 (PTS)		
Frequency above mean	27			15			40		
Frequency below mean	30			19			51		

Table 4 shows a correlation between intelligence Quotient Test Results and Achievement Level in English of Grade 5 Learners which has a p-value of 0.000 with  $r = 0.479$ , indicating that the moderately strong relationship is statistically significant. Practically speaking, this means that, kids with higher IQ scores tend to perform better in English. Table 5 shows a correlation between intelligence Quotient Test Results and Achievement Level in English of Grade 6 Learners correlation coefficient is  $r = 0.438$  with  $p\text{-value} = 0.000$ , which indicates a positive moderately strong correlation between IQ test results and English achievement level, the result is significant. The findings show that there is a statistically significant positive correlation between IQ test results and English achievement level among Grade 6 learners. Based on the findings, the null hypothesis is rejected. The results of this study indicate that among students in Grade 5 and Grade 6, IQ test scores are favorably correlated with English achievement levels. The study’s considerable positive connection is in line with previous findings that suggest cognitive ability—as determined by IQ tests—influences academic achievement.

The IQ of a person matters as it is regarded to predict his/her intellectual ability to learn and the limits of academic performance. A person with a low IQ score is likely to perform less in education than a person with a high IQ score (Gundersen et al., 2001). Students who score high will yield more exceptional accomplishments in school since IQ has a relative impact on the academic achievement of the learners. Students who scored low can achieve less based on the preliminary assessment of their intelligence. Vygotsky (1978) has closely associated the cognitive development to education (Sternberg et al., 2001). The correlation’s strength ( $r = 0.635$ ) also implies that achievement in English is not only determined by IQ. Additional fundamentals include interpretation, motivation, the quality of instruction, and socioeconomic status.

**Table 4.** *Correlation Between Intelligence Quotient Test Results and Achievement Level in English of Grade 5 Learners*

			Intelligence Quotient Test Results	Achievement Level in English
Kendall's tau_b	Intelligence Quotient Test Results	Correlation Coefficient	1.000	.479*
		Sig. (2-tailed)	.	.000
		N	57	57
	Achievement Level in English	Correlation Coefficient	.479*	1.000
		Sig. (2-tailed)	.000	.
		N	57	57
**. Correlation is significant at the 0.01 level (2-tailed).				



**Table 5.** *Correlation Between Intelligence Quotient Test Results and Achievement Level in English of Grade 6 Learners*

			Intelligence Quotient Test Results	Achievement Level in English
Kendall's tau_b	Intelligence Quotient Test Results	Correlation Coefficient	1.000	.438**
		Sig. (2-tailed)	.	.000
		N	34	34
	Achievement Level in English	Correlation Coefficient	.438**	1.000
		Sig. (2-tailed)	.000	.
		N	34	34
**. Correlation is significant at the 0.01 level (2-tailed).				

**Asian Psychological Services and Assessment or APSA** was established in 1987 and instigated the form of assessment constructed by local experts suitable to the culture and personality of the Filipino people. Therefore, the results and measures used are more reliable and valid.

Table 6 shows a correlation between the intelligence quotient test and APSA results in English of grade 5 Learners. The obtained p-value of 0.000 is lesser than the 0.05 level of significance with  $r=0.497$ . This indicates that the positive moderately strong correlation is statistically significant. Based on the significant correlation results, the null hypothesis is rejected. The findings suggest that there is a strong and significant positive relationship between achievement level in English and APSA results in English for Grade 5 learners. Moreover, table 7 shows a correlation between intelligence quotient tests and APSA results in English of grade 6 Learners. The p-value of 0.010 is less than the 0.05 level of significance with  $r=0.320$ . This indicates that the positive but moderate correlation is statistically significant. Based on the significant correlation and the t-test results, the null hypothesis (which states that there is no correlation between intelligence quotient test results and achievement level in English) can be rejected. The findings suggest that there is a moderate and significant positive relationship between intelligence quotient test results and achievement level in English for Grade 6 learners.

This implies that students who perform well in English achievement tests also tend to score high on APSA assessments. However, it's important to note that correlation does not imply interconnectedness. Other factors, such as teaching methods, study habits, and socioeconomic status, may also influence both English achievement and APSA results. This implies that students with higher IQ scores tend to perform better in English.

**Table 6.** *Correlation Between Intelligence Quotient Test and APSA Results in English of Grade 5 Learners*

			Intelligence Quotient Test Results	APSA Results
Kendall's tau_b	Intelligence Quotient Test Results	Correlation Coefficient	1.000	.497**
		Sig. (2-tailed)	.	.000
		N	57	57
	APSA Results	Correlation Coefficient	.497**	1.000
		Sig. (2-tailed)	.000	.
		N	57	57
**. Correlation is significant at the 0.01 level (2-tailed).				

**Table 7.** *Correlation Between Intelligence Quotient Test and APSA Results in English of Grade 6 Learners*

			Intelligence Quotient Test Results	APSA Results
Kendall's tau_b	Intelligence Quotient Test Results	Correlation Coefficient	1.000	.320*
		Sig. (2-tailed)	.	.010
		N	34	34
	APSA Results	Correlation Coefficient	.320*	1.000
		Sig. (2-tailed)	.010	.
		N	34	34
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 8 shows a correlation between achievement level and APSA results in English of Grade 5 Learners. Based on the significant positive strong correlation (p-value=0.000, r= 0.580), the null hypothesis is rejected. The findings suggest that there is a strong and significant positive relationship between achievement level in English and APSA results in English for Grade 5 learners. This implies that students who perform well in English achievement tests also tend to score high on APSA assessments. Table 9 shows a correlation between achievement level and APSA results in English of Grade 6 Learners. Based on the positively strong and significant correlation (p-value= 0.000, r= 0.614), the null hypothesis is rejected. The findings suggest that there is a strong and significant positive relationship between IQ test

results and achievement level in English for Grade 6 learners. This implies that students with higher IQ scores tend to perform better in English.

That being said, it's important to note that there are other factors, such as teaching methods, study habits, and socioeconomic status, that influence both English achievement and APSA results.

**Table 8.** *Correlation Between Achievement level and APSA Results in English of Grade 5 Learners*

			APSA Results	Achievement Level in English
Kendall's tau_b	APSA Results	Correlation Coefficient	1.000	.580*
		Sig. (2-tailed)	.	.000
		N	57	57
	Achievement Level in English	Correlation Coefficient	.580*	1.000
		Sig. (2-tailed)	.000	.
		N	57	57
**. Correlation is significant at the 0.01 level (2-tailed).				

**Table 9.** *Correlation Between Achievement Level and APSA Results in English of Grade 6 Learners*

			APSA Results	Achievement Level in English
Kendall's tau_b	APSA Results	Correlation Coefficient	1.000	.614*
		Sig. (2-tailed)	.	.000
		N	34	34
	Achievement Level in English	Correlation Coefficient	.614*	1.000
		Sig. (2-tailed)	.000	.
		N	34	34
**. Correlation is significant at the 0.01 level (2-tailed).				

## CONCLUSIONS

Intelligence is the capacity of the mind to understand from experiences and adjust to any circumstances, perceive vague ideas, and apply acquired information to survive in one's surroundings. An intelligent and beneficial adaptation to the evolving environment could result from a prudent integration of these processes. The findings support Gardner's theory of multiple intelligences, as students with varying IQ levels can still achieve high levels of academic performance in English. Cattell's theory of crystallized intelligence is supported, as the student's prior knowledge and experience seem

to contribute to their strong English language skills. Intelligence Quotient, academic achievement, and APSA results are interconnected and can be used as predictors of academic success in English. While gender differences were observed in some areas, they were not constant across all levels. The differences between Grade 5 and Grade 6 were minimal, suggesting a relatively consistent performance level across these grades. Grade 5 and 6 learners have below-average IQ scores, satisfactory achievement levels in English, and are progressing towards standards based on the APSA results. There is a need for improvement across all areas.

In general, these conclusions underscore the need for targeted interventions to improve performance, especially in IQ and APSA scores, while maintaining or enhancing achievement levels across gender and grade levels.

## RECOMMENDATIONS

The researcher offers the following relevant recommendations:

1. Given the diverse range of IQ scores, the University of Bohol Victoriano D. Tirol Advanced Learning Center educators should consider implementing individualized instruction to cater to the specific needs of each student.
2. The strong performance in English suggests that English teachers from the University of Bohol Victoriano D. Tirol Advanced Learning Center should continue to emphasize English language development.
3. While the APSA results are promising, there is still room for improvement, especially in Grade 6. Targeted interventions – alignment of competencies, differentiated instruction, focused remedial programs, use of formative assessments, professional development of teachers, and involvement of parents could be implemented to enhance APSA performance.
4. The University of Bohol Victoriano D. Tirol Advanced Learning Center, in coordination with the University of Bohol Guidance Center, should offer IQ tests that may help them assess in determine the ability of an individual. This way, the results will help the administration know the potential of students, especially those who came from another school through their screening system.
5. To gain a deeper understanding of the factors influencing student performance, additional research could explore variables such as socioeconomic status, teaching methods, and student motivation.
6. The administration, teachers, and parents must work collaboratively to improve the performance of the students.

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