

Intelligence Quotient and Learning Outcomes: A Correlational Study of Guidance and Counseling Undergraduates

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Abstract

Intelligence Quotient (IQ) is widely assumed to be a primary determinant of academic success, yet preliminary observations in the Guidance and Counseling Study Program of FKIP Universitas PGRI Palembang showed that several students with superior IQ obtained lower grade point averages (GPA) than their peers in the average category. This study aimed to examine the correlation between IQ and the learning outcomes of the 2023 cohort. A quantitative correlational design was employed with total sampling of 72 students. IQ data were collected using the Culture Fair Intelligence Test (CFIT) Scale 3, and learning outcomes were obtained from students' GPA documents in the first and second semesters of the 2023/2024 academic year. Data were analyzed using normality, linearity, and homogeneity tests, Spearman's rank correlation, and simple linear regression. The results showed no statistically significant correlation between IQ and GPA (Spearman's $\rho = -0.078$, $p = 0.514$; regression coefficient $p = 0.271 > 0.05$), with IQ accounting for only 1.7% of the variance in learning outcomes ($R^2 = 0.017$), while the remaining 98.3% was explained by other factors. These findings indicate that IQ alone does not determine students' academic achievement and imply that guidance and counseling services should also address non-cognitive factors such as motivation, learning habits, and emotional aspects to optimize student learning outcomes.

Keywords: intelligence quotient; learning outcomes; guidance and counseling students; correlational study

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INTRODUCTION

The development of science and technology in higher education institutions is carried out by the academic community through learning activities, scientific research, and the

cultivation of an academic culture. In this context, students are part of the academic community and bear the responsibility of actively developing their potential through the learning process. In the digital era, demands for intellectual capabilities, information literacy, and optimal learning outcomes are increasingly rising (Simatupang et al., 2025). Therefore, understanding each individual's potential is crucial for achieving effective, high-quality learning (Usman & Hapsari, 2019). Potential that remains unrecognized and poorly managed can hinder both the learning process and the students' personal development.

Consequently, it is not surprising to find students whose study habits do not support the achievement of expected learning outcomes. Examples include procrastinating on coursework (Zuraida, 2017), prioritizing active participation in campus organizations over academics, frequently arriving late to class (Al-Bahra & Setiawan, 2019), and failing to attend lectures regularly behaviors that ultimately lead to conflicts with lecturers and fellow students. Such students often struggle to achieve good academic results; if left unaddressed, their studies may be delayed to the point of reaching the maximum study duration limit of 14 semesters.

One indicator of intellectual ability that is often used in the world of education is the Intelligence Quotient, abbreviated as IQ (global intelligence or general thinking ability). IQ is a standard measure used in relation to a person's basic ability to reason, solve problems, learn, understand ideas, think, and plan something. This intelligence is used to solve problems involving logic (Azwar, 2010). Thus, with IQ, students are able to carry out learning activities well and obtain balanced learning outcomes.

Furthermore, Intelligence Quotient (IQ) is "a measure of a person's intelligence derived from the results obtained from a specially designed test. The quotient is traditionally derived by dividing a person's mental age by their chronological age and multiplying the result by 100" IQ (Irani & Pogo, 2018)

Types of intelligence tests as summarized by (Darmawani & Astuti, 2016) include: Binet-Simon Intelligence Test, Draw a-Man Test in 1926, WISC (Wechsler Intelligence Scale for Children), Standard Progressive Matrices (SPM), Scholastic Aptitude Test (SAT), Culture Fair Intelligence Test (CFIT), Miller Analogies Test, Indonesian Group Intelligence Test (TIKI), Academic Potential Test (TPA).

Intelligence tests have an influence on student learning outcomes. Another thing to look at is the Problem Based Learning (PBL) system used in universities, which requires students to be able to correlate various sciences, concepts and theories to solve behavioral problems related to social life (learning, career, social and personal). Good intelligence ability is considered as one of the important things, because it is believed to be able to influence logical thinking skills, analytical skills, and the ability to solve problems in their work (AB, 2025). Various individuals who enter the Faculty of Teacher Training and Education, especially the guidance and counseling study program, have different potentials. According to researchers, the existing potential needs to be identified, one of which is the potential in terms of students' intelligence abilities, which can be known by conducting intelligence tests, so that ignorance about students' potential in this case intelligence, which can later become an obstacle in student learning, can be avoided.

A person's IQ can be assessed through an intelligence test. An intelligence test is a tool that has been standardized and is objective for assessing intellectual ability. (Khairani, 2017) in her book argues that in intelligence tests, one can reveal

understanding, ability in the field of general knowledge, speed of thinking and working, memory, language vocabulary, accuracy of association and concentration of a person.

In line with the problems that occur in many students at various universities, students of the Guidance and Counseling (BK) Study Program at the Faculty of Teacher Training and Education (FKIP) Universitas PGRI Palembang are individuals who are expected to have adequate general basic abilities to understand and implement the knowledge they learn. In addition, they must also be able to guide and direct students at various levels of education. Therefore, understanding the intelligence they have will help them obtain good learning outcomes. This is important to ensure that the education process that is run can produce quality graduates.

Learning outcomes are a reflection of students' academic achievements which are influenced by various factors. In addition to the basic ability factor with a standard level of general thinking intelligence, learning outcomes are also influenced by intelligence factors, socio-emotional/psychological, kinesthetic and spiritual such as; motivation, learning methods, learning environment, family conditions (Nanda & Handayani, 2025). However, the influence of IQ on learning outcomes is often the main focus because IQ is considered as the main indicator of a person's potential for learning success.

Learning is a process within an individual that interacts with the environment to obtain changes in their behavior. Learning is a mental/psychological activity that takes place in active interaction with the environment which produces changes in knowledge, skills, and attitudes (Winkel, 1999). These changes are obtained through effort (not because of maturity), are permanent for a relatively long time and are the result of experience (Purwanto, 2019).

Several previous studies describe many studies that have been conducted to examine the relationship between IQ and learning outcomes. Research by (Jensen, 1980) shows a significant positive correlation between IQ and academic achievement. However, another study by (Sternberg et al., 2001) shows that although IQ has an influence, other factors such as creativity and practical abilities also play an important role in learning outcomes.

Recent meta-analytic evidence confirms that the strength of the relationship between intelligence and academic achievement varies considerably across contexts. A systematic review of 27 studies involving more than 42,000 participants reported an average correlation of $r = .37$ between intelligence and academic performance, and the association tends to weaken at higher educational levels due to the restricted range of ability in selected university populations (Lozano-Blasco et al., 2022). Longitudinal evidence further shows that intelligence operates alongside personality in a dynamic and reciprocal interplay in shaping achievement over time (Bardach et al., 2023). These recent findings reinforce the research gap addressed in the present study: the extent to which IQ still explains the learning outcomes of a selected university population, such as guidance and counseling students in Indonesia, remains an empirical question that needs to be tested.

Students of the guidance and counseling study program generally in the second semester or first year have taken the Culture Fair Intelligence Test (CFIT) developed by Cattell. The test results show differences in the categories (levels of IQ) of students, even some are in the Superior category, although generally in the normal average category. Even though the IQ test results are known, it is not clear whether the learning outcomes achieved are as expected, it is possible that those with an IQ that is not in the superior

category have better learning outcomes. This is certainly influenced by various factors, both special intelligence (talent) and multiple intelligences or other factors.

To examine in more depth the correlation between IQ and learning outcomes of students in the BK FKIP UPGRi Palembang Study Program class of 2023-2024, research was conducted. By knowing the correlation, it is hoped that it can provide a deeper understanding and awareness of the characteristics of the advantages and disadvantages of a person's level of ability and use it to succeed better in academic achievements, including providing a basis for developing more effective learning strategies to improve student learning outcomes. Likewise, it is hoped that someone will understand that if they allow their advantages, it will cause various losses to themselves related to the achievement of learning outcomes in achieving social life in the future.... In addition, this research is also expected to contribute to the development of guidance and counseling programs at FKIP UPGRi Palembang, especially in helping students optimize their intellectual potential. Thus, this research not only provides academic benefits, but also practical benefits in improving the quality of education in the FKIP UPGRi Palembang environment.

METHOD

This research is a correlational study, which aims to examine the correlation between Intelligence Quotient (IQ) and the learning outcomes of students in the Guidance and Counseling (BK) Study Program, FKIP UPGRi Palembang, class of 2023-2024. This study involves two variables, namely the independent variable "Intelligence Quotient" and the dependent variable "Student Learning Outcomes". The population in this study is the 2023 class, which consists of 72 students. A sample is part of the population that is taken to represent the population. The sample selection in this study uses total sampling, namely the entire population is used as a sample (Sugiyono, 2019). So the sample in this study is 72 students. The primary data used is based on the results of the IQ Test (CFIT type) and academic grades, while the secondary data is based on literature and references. The research tools used are the CFIT IQ Test Scale 3 forms A and B, belonging to the Laboratory of the Guidance and Counseling Study Program, Universitas PGRI Palembang. The data analysis tools are a computer/laptop, answer sheets, answer keys, and a guide for psychological test license holders, and statistical software. This research was carried out at Universitas PGRI Palembang, South Sumatra Province, in the Guidance and Counseling Study Program. Data analysis in this study uses normality test, linearity test, homogeneity test, and simple linear regression test.

Design

This research is correlational research, which aims to examine the correlation between Intelligence Quotient (IQ) and the learning outcomes of students in the Guidance and Counseling (BK) Study Program, FKIP UPGRi Palembang, class of 2023-2024.

Participants

Primary Data: (1) IQ Test: Data obtained directly from the results of an IQ test administered to students in the Guidance and Counseling (BK) Study Program, Faculty of Teacher Training and Education, UPGRi Palembang, intake 2023-2024. (2) Academic Grades: Student academic grade data taken from the grade recapitulation in the campus academic information system. Secondary Data: Literature and References: Scientific

journals, books, articles, and other sources relevant to the research topic on IQ and learning outcomes.

Instrument

IQ Test: The Culture Fair Intelligence Test (CFIT) Scale 3, Forms A and B, owned by the Laboratory of the Guidance and Counseling Study Program, Universitas PGRI Palembang, was administered by a licensed psychological test administrator. The CFIT was chosen because it minimizes cultural and language bias and has established reliability in measuring general (fluid) intelligence. Learning outcomes were documented from students' Grade Point Average (GPA) in the first and second semesters of the 2023/2024 academic year.

Data Analysis

The analysis was conducted by: (1) Entering IQ test results and academic scores into statistical software. (2) Conducting descriptive analysis to understand the data distribution. (3) Conducting a normality test to ensure the data were normally distributed. (4) Calculating Spearman's rank correlation coefficient and conducting a simple linear regression analysis to determine the relationship and the contribution of IQ to learning outcomes. (5) Interpreting the analysis results and drawing conclusions based on the findings.

RESULT AND DISCUSSION

In this study, sampling was carried out using the total sampling method with a sample of 72 students from the 2023 class. Data testing through Kolmogorov-Smirnov is intended to test data with samples below 100, with the criteria that if the significance value > 0.05 the data are normally distributed, and if the significance value < 0.05 the data are not normally distributed (Kesumawati & Aridanu, 2021). From the table above, the significance value for the learning outcomes variable is $0.079 > 0.05$, so it is normally distributed, whereas the intelligence variable is $0.015 < 0.05$, indicating a deviation from normality. Because one of the variables did not meet the normality assumption, Spearman's rank correlation was used as a non-parametric correlation test, complemented by a simple linear regression analysis to estimate the contribution of IQ to learning outcomes. The results of the normality test are presented in Table 1.

Normality Test

Table 1. Normality Test

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Intelligence	.117	72	.015	.929	72	.001
learning outcomes	.324	72	.079	.538	72	.000

a. Lilliefors Significance Correction

Linierity Test

In this study, to test linearity, analysis of variance on the regression line will obtain the F count as shown in Table 2 below,

Table 2. Linierity Test

ANOVA Table							
			Sum of Squares	Df	Mean Square	F	Sig.
learning outcomes* Intelligence	Between Groups	(Combined)	.875	17	.051	.547	.915
		Linearity	.103	1	.103	1.096	.300
		Deviation from Linearity	.772	16	.048	.512	.930
	Within Groups		5.087	54	.094		
	Total		5.963	71			

The linearity test using analysis of variance on the regression line will get the F count. The F price is found with the F table value with a significant level of 5%. It has the criteria that if the F count is less than or equal to the F table at a significant level of 5%, then the relationship between the independent and dependent variables is said to be linear, whereas if the F count > F table, then the independent and dependent variables are not linear (Subhaktiyasa, 2024). In the table above, the significance value obtained is $0.300 > 0.05$, which means that there is a significant linear relationship between the independent and dependent variables.

Homogeneity Test

The results of the homogeneity test are presented in Table 3.

Table 3. Homogeneity Test

Test of Homogeneity of Variances			
Intelligence			
Levene Statistic	df1	df2	Sig.
2.191	20	45	.075

The homogeneity test is carried out to determine whether the sample comes from the same or almost the same variance. It has the criteria that if the probability or significance value > 0.05 then the sample variance is declared homogeneous, and vice versa if the significance value < 0.05, then the sample variance is declared not homogeneous (Kesumawati & Aridanu, 2021). From the table above, it is known that the significance value of variable Y based on variable X is $0.075 > 0.05$, so it can be interpreted that the variable data has homogeneous or the same data.

Spearman Correlation Test

The results of the Spearman correlation test are shown in Table 4 below

Table 4. Spearman Correlation Test

Correlations			
		Intelligence	learning outcomes
Spearman's rho	Intelligence	Correlation Coefficient	1.000
		Sig. (2-tailed)	-.078
		N	.514
	learning outcomes	Correlation Coefficient	.72
		Sig. (2-tailed)	-.078
		N	.514

If the significance value is < 0.05 then it is correlated and if the significance value is > 0.05 then it is not correlated. From the table above, it was found that the result of this correlation test is 0.514 which indicates that there is no correlation between IQ and GPA.

Simple Linier Regression Test

The results of the simple linear test are shown in Table 5 below

Table 5. Simple Linier

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.132 ^a	.017	.003	.28932

a. Predictors: (Constant), Intelligence

It is known that the R Square value is 0.017, so it is concluded that the contribution of the influence of the independent variable on the dependent variable is 1.7%. The coefficient results of the simple linear regression are presented in Table 6.

Table 6. Coeficient Simple Linier

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	3.319	.335		9.895	.000
	Intelligence	.004	.003	.132	1.110	.271

a. Dependent Variable: learning outcomes

In the table above, it is known that the t count value is 1.110 and the t table value is obtained from the distribution table of 1.666, because the t count value is smaller than the t table value, then H_0 is accepted and H_a is rejected. It is known that the significance value of the independent variable is $0.271 > 0.05$, so it is concluded that the independent variable does not have a statistically significant effect on the dependent variable. The regression equation obtained is: $\hat{Y} = 3.319 + 0.004X$. The constant value obtained is 3.319, so it can be interpreted that if the independent variable is worth 0 (Constant), then the dependent variable is worth 3.319.

The results of the study indicate that after conducting a linear regression test, it was found that the GPA of students from the 2023-2024 cohort is influenced by IQ by 1.7%, while the remaining 98.3% is influenced by other factors, with a significance value of $0.271 (> 0.05)$, which indicates that the contribution of IQ to GPA is not statistically significant. This study aligns with the findings of (HATIMA et al., 2016) regarding "The Influence of Intellectual Intelligence and Emotional Intelligence on the Academic Achievement of Management Students at the Faculty of Economics, Tadulako University," which concluded that intellectual intelligence is not the sole determinant of an individual's success; other influencing factors include emotional intelligence, the students' socioeconomic conditions, their interest in and willingness to learn, and numerous other factors.

Similarly, (Khodijah, 2014) also stated that factors affecting learning include intelligence, interest, motivation, memory, and emotion. Interest itself is said to significantly influence an individual's learning, as a person with high interest will be more enthusiastic about studying. Likewise, motivation plays a role; individuals who share the same learning style but have different levels of motivation will have varying success, with those possessing higher motivation being more successful in their studies. Emotions also affect learning; positive emotions enable better absorption of lessons or information by

the brain, and the underlying factor for all this is memory, as it allows an individual to record, remember, and retrieve all information acquired during the learning process.

Furthermore, according to Azwar (in Arini, 2012), there are two components that influence academic achievement: internal and external factors. Internal factors include physical and psychological aspects, comprising non-physical factors such as interest, motivation, talent, intelligence, attitude, and mental health. Physical factors include elements like vision and hearing. External factors encompass both physical and social aspects. Physical external factors include the learning environment, facilities and equipment, learning material, and social support. Social factors include cultural influences and social support.

This finding is also consistent with current international evidence. In selective university populations, the predictive power of IQ on GPA tends to be attenuated because of range restriction, so that non-cognitive factors play a relatively larger role (Lozano-Blasco et al., 2022). A meta-analysis by Quilez-Robres et al. (2023) demonstrated that emotional intelligence has a moderate-to-high positive association with academic performance, while a recent review by Stankov and Lee (2025) concluded that self-beliefs self-efficacy, confidence, and test anxiety are among the strongest non-cognitive predictors of achievement. Socio-environmental conditions such as family socio-economic status also contribute to achievement at all levels of intelligence (Steinmayr & Kessels, 2024). Taken together, these findings support the present result that IQ alone accounts for a very small proportion of the variance in students' learning outcomes, and they strengthen the argument that guidance and counseling services should also target students' self-beliefs, emotional competencies, and learning environment.

Students in the guidance and counseling program will attain better GPAs if they can overcome other hindering factors. Additionally, by understanding their IQ, students should seek opportunities to improve their grades from previous performances.

For further research, it would be beneficial to include other variables aside from intelligence that may relate to academic achievement. Variables such as physical factors (vision and hearing), interest, motivation, talent, mental health, learning conditions, facilities, learning equipment, learning environment, and social support are some factors that may play a role in GPA

CONCLUSION

Based on the research conducted on the correlation between intelligence and the learning outcomes of students in the Guidance and Counseling Study Program (BK) at FKIP Universitas PGRI Palembang for the 2023-2024 academic year, it can be concluded that there is no statistically significant correlation between students' Intelligence Quotient (IQ) and their learning outcomes (GPA). IQ contributes only 1.7% to the variance in learning outcomes, while the remaining 98.3% is explained by other factors such as motivation, interest, learning habits, emotional intelligence, and environmental support. These findings imply that IQ should not be treated as the sole predictor of academic success. Guidance and counseling services are therefore encouraged to help students recognize their intellectual potential while simultaneously strengthening non-cognitive factors that support learning. Future research is recommended to involve additional variables and a broader population to obtain a more comprehensive picture of the determinants of student learning outcomes.

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