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FACTORS AFFECTING STUDENTS' ACADEMIC PERFORMANCE: A CASE STUDY AT A PUBLIC UNIVERSITY IN NEGERI SEMBILAN

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1. Introduction

A student is someone who attends school or another educational institution to learn, acquire skills, and find a job. A student is anybody who intensively studies a subject to master it for a practical purpose. Student success is measured by academic topics. Continuous assessment, CGPA, and standardized exam scores are used by educators to evaluate student performance. Academic performance contributes to academic achievement. Socioeconomic position, student personality and motivation, and peer and family support affect academic success (Maguin and Loeber, 1996). Tomul and Celik (2009) found various family factors affect academic performance, while Lin and Han (2017) stated lower-income parents are busy and don't expect much from their kids, and they may also prioritize food above schooling. Usaini and Abubakar (2015) reported that parents with formal jobs used their monthly salaries to buy books and stationery for their children. Their steady income allows them to invest heavily in their children's education. Professionals provide their children with learning materials, which helps them succeed in school (Machebe, Ezegbe, & Onuoha, 2017). Youth growth depends on academic performance. Young individuals entering the workforce must have a solid foundation of education and, in many cases, specialized skills due to job specialization. Consequently, the purpose of the study is to establish the primary elements that impact students' academic performance in terms of gender, age, parental occupation, parental education, parental income, and opinion and to identify the relationship between gender and academic performance.

2. Methodology

There are 1539 students, and 154 students were chosen as samples in this study. There were diploma or bachelor's degree students at a public university in Negeri Sembilan. The factors may contribute to the academic performance by looking at their age, gender, parental occupation, education, and income, as well as the opinion of the students regarding their academic performance. These factors are classified as independent variables, while CGPA is the measurement of academic performance. Multiple linear regressions were performed to look at the relationship between the factors and academic performance, and an independent t-test was employed to identify the relationship between gender and academic performance.

3. Data Analysis

Multiple linear regression is a statistical technique that predicts the outcome of a response variable using numerous exploratory factors. Multiple linear regression aims to model the linear relationship between explanatory (independent) factors and response (dependent) variables. This study focuses on the modelling of the independent factors, including age, gender, parental occupation, parental education, parental income, and parental opinion as contributors to the dependent variable, cumulative grade point average (CGPA) as determined by academic achievement.

Table 1: Value of F Test, Sig. and R Square

F	Sig.	R Square
1.867	0.011	0.295

Table 1 shows the significant regression equation that was found (F = 1.867, p = 0.011), whose p-value is less than the significance value of 5%. Based on the standard regression analysis, R2 = 0.295 shows how well the model explains the difference in the dependent variable. An R-squared of 29.5 percent indicates that the regression model explains 29.5 percent of the variability seen in the target variable. Another 70.5 percent is from other variables such as motivation, learning styles, and attitude. Most studies have found that neither gender nor age significantly affect academic performance results. This may be due to the low amount of time spent gathering the data, in addition to the small sample size, which has groups of varying sizes.

The model of Multiple Linear Regression for this study is as follows:

$$Y = 5.271 + 0.050_{x1} - 0.073_{x2} - 0.062_{x3} - 0.047_{x4} - 0.061_{x5} - 0.015_{x6} + 0.226_{x7} - 0.129_{x8} - 0.102_{x9} - 0.195_{x10} - 0.078_{x11} - 0.278_{x12} - 0.265_{x13} - 0.297_{x14} - 0.196_{x15} - 0.306_{x16} - 0.268_{x17} - 0.343_{x18} - 0.040_{x19} + 0.163_{x20} + 0.306_{x21} + 0.220_{x22} + 0.284_{x23} + 0.335_{x24} + 0.417_{x25} + 0.388_{x26} + 0.000001405_{x27} - 0.011_{x28} \quad (1)$$

For identifying the relationship between gender and academic performance, an independent sample t-test was used to compare the mean CGPA of two separate groups of students. When two samples are drawn from the same population for an independent samples t-test, their means may be the same.

Table 2: Equality Test

	P-Value
Cumulative Grade Point Average (CGPA)	0.440

Table 2 shows the p-value is 0.440, where the value is higher than the significance value of 5%. Therefore, it can be concluded that there is no significant difference between males and females in terms of academic performance.

4. Conclusion

The study found that the model developed for predicting academic performance based on the independent variables is significant, and 29.5% of the variation in academic performance was explained by age, gender, parental occupation, parental education, parental income, and parental opinion. The study identified age and the highest education level of mothers with a

diploma, bachelor's degree, or master's degree as significant factors that influence students' academic performance. Gender, occupation of father and mother, highest education level of father and mother, parental income, and the student's opinion towards factors affecting academic performance did not show a significant effect on academic performance. The study also found no significant gender gap in terms of academic performance. Future researchers are suggested using other methods, such as logistic regression and the environment factor, to check whether they were related.

References

Lin, T., & Lv, H. (2017). The effects of family income on children's education: An empirical analysis of CHNS data. *Research on Modern Higher Education*, *4*, 49–54.

Machebe, C. H., Ezegbe, B. N., & Onuoha, J. (2017). The impact of parental level of income on students' academic performance in high school in japan. *Universal Journal of Educational Research*, *5*(9), 1614–1620.

Maguin, E., & Loeber, R. (1996). Academic performance and delinquency. *Crime and justice*, *20*, 145–264.

Tomul, E., & Celik, K. (2009). The relationship between the students' academics achievement and their socioeconomic level: cross regional comparison. *ProcediaSocial and Behavioral Sciences*, *1*(1), 1199–1204.

Usaini, M. I., & Abubakar, N. B. (2015). The impact of parents' occupation on academic performance of secondary school students in Kuala Terengganu. *Multilingual Academic Journal of Education and Social Sciences*, *3*(1), 112–120.