

# The Impact of Scholarships on Student Achievement: A Mix Methods Study

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## ABSTRACT

This study investigates the impact of scholarships on student achievement at the Faculty of Education, State University of Surabaya. The research aims to describe the academic achievement of scholarship recipients, analyze their activities while receiving scholarships, examine the relationship between scholarship effectiveness and academic achievement, identify determinant factors influencing these relationships, and delineate academic criteria for scholarship eligibility. The study employs a mixed-methods approach, combining qualitative conversations with students, parents, administrators, and scholarship program managers, and quantitative surveys of scholarship recipients and non-recipients. Surveys were administered through paper and electronic questionnaires to students in the Faculty of Economics and Business and the Faculty of Engineering. The findings are expected to provide systematic policy recommendations for determining scholarship amounts and emphasize the need for structured scholarship advice and counseling. The study holds significant implications for understanding the role of scholarships in enhancing student performance and guiding future scholarship programs, ultimately leading to improved graduation rates, grade point averages, and employability skills among scholarship recipients.

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## 1. INTRODUCTION

This research highlights the issue of the quality of higher education scholarship in pre-service teachers' education in the Faculty of Education. A university student will benefit from a scholarship's efficiency in terms of time, effort, and finance if they are able to complete their studies on time. (Perna et

al., 2020) This approach is expected to maintain the trust of stakeholders, such as the government, faculty, university, and other related parties, which in turn will increase user interest. The Faculty of Education has already provided various incentives to value scholarship recipients' learning outcomes through college students' capstone scores. However, many students who have already achieved a KPM capstone do not consider it a factor for obtaining a cum laude. The purpose of this study is to investigate, describe, and analyze the impact of DEP Scholarship Students on student achievement at the Faculty of Education.

This study originates from the growing number of scholarship opportunities. Many scholarship providers are concerned about the potential of scholarship recipients. At the Faculty of Education, State University of Surabaya, numerous scholarships are awarded to students. These scholarships are divided into three levels of state scholarships, each with long, medium, and short implementation periods. Additionally, there is a Bidik Misi Scholarship with a two-way system that offers full and half scholarships to undergraduate students. Other scholarships include Professor Scholarships, Independent Scholarships, and Empowerment Scholarships. The assessment used to determine scholarship recipients is the service assessment, which serves as an index of student academic achievement. However, on the other hand, scholarships provide students with ample opportunities to improve over time. For instance, research demonstrated that scholarships act as a medium for enhancing student performance. In other words, during the scholarship period, students have the chance to put in more effort to improve their achievement index (Kosasih et al.2023) (Widyastomo and Nilasari2023) (Pratama et al.2024) (Purba & Sofian, 2021) (Setiawan et al.2022).

The importance of paying attention to student achievements at educational institutions cannot be overstated in conducting this research. Grades, which are determined by the internal quality assurance system, serve as a measure of the knowledge that students have acquired (Wang et al., 2022). As such, a high student grade point average is a valuable asset that can motivate and improve performance, not only for the students themselves but also for third parties, such as industry recruiters (Fang & Saks, 2021). On the other hand, a low student grade point average or extended course completion time can have negative consequences for students' academic performance (Allal-Chérif et al.2021) (Cruz and Encarnacion2021) (Bonilla, 2020). Providing scholarships to scholarship students is expected to address economic challenges and enable students to focus on their studies, which can improve their academic performance compared to students who do not receive scholarships (Wang et al., 2022).

The purpose of this research is to determine the impact of scholarships on students' academic achievement within the Faculty of Education at Universitas Negeri Surabaya. This research aims to explore the motivations and objectives associated with scholarship programs at the university. The study also includes a review of the research framework employed to understand these dynamics. The objectives of this research are outlined as follows: to describe the academic achievement of students in the Faculty of Education who dropped out during the 2012-2013 even semester; to analyze the activities of these students in receiving scholarships during the same period; to provide a comprehensive analysis of the relationship between scholarship effectiveness and academic achievement; to identify and examine the determinant factors influencing these relationships both partially and simultaneously; and to delineate the academic criteria for students who qualify for scholarships versus those who do not during the distribution period. This study holds significant implications for understanding the role of scholarships in enhancing student performance and guiding future scholarship programs.

The current endeavor seeks to investigate the influence of scholarships on student attainment at the Faculty of Education, State University of Surabaya. The investigation commences by scrutinizing the present circumstances of scholarship beneficiaries, who predominantly originate from low-income households. Nonetheless, it is imperative to acknowledge that students from prosperous socioeconomic backgrounds may also necessitate financial aid and warrant scholarship consideration (DeMark and Kozyrev2021). Low student performance can culminate in diminished academic discipline, discontinuation, and extended duration of studies (Bradley et al.2021). Conversely, the reception of scholarships can serve to enhance student accomplishments, ultimately leading to elevated graduation rates and grade point averages (Li et al., 2022).

The results of this study are significant for policymakers in the field of scholarships, as they provide valuable input for formulating effective scholarship models and guidance. One major benefit is the provision of systematic policy recommendations for determining scholarship amounts for undergraduate students. The findings indicate that with lower or equal amounts of scholarship funding, students can complete their studies more quickly and achieve good results, helping them acquire the necessary skills for employment and independence. Additionally, the research emphasizes the need for structured scholarship advice and counseling, particularly in informal education settings. Currently, scholarship guidance is often provided on an individual basis and lacks a systematic approach. The success of this research can lead to targeted counseling within formal education, ensuring that scholarship guidance is more effective and well-organized.

## 2. METHODS

In our research study, we employed a mixed methods approach, which comprised both qualitative and quantitative methods (Allal-Chérif et al.2021). Our qualitative work was descriptive, involving conversations with students, their parents, families, administrators, government employees, and scholarship program managers from two faculties at Universitas Negeri Surabaya. These conversations provided us with valuable insights into the impacts of scholarships at Universitas Negeri Surabaya and informed our analysis. Our quantitative work, on the other hand, was based on surveys of students who had been offered scholarships and those who had not. The surveys were administered through both paper and electronic questionnaires, with the latter being administered by students using Android smartphones. The surveys were conducted among students in the Faculty of Economics and Business and the Faculty of Engineering, which were selected by PPKK UNESA (the Center for Quality Development) in collaboration with UNESCO for the UIW project. PPKK UNESA selected these faculties based on the economic status of the students, and we are currently conducting similar research in faculties with different economic backgrounds, thanks to a grant from the Ford Foundation.

The Institutional Review Board (IRB) at the university has granted approval for all research activities conducted within the broader UIW program. Moreover, we are collecting data on students' academic performance and graduation rates. The scholarships were analyzed using ordinary least squares (OLS) regression, which is a statistical method that involves regression analysis to provide information about how a dependent variable changes in response to changes in independent variable(s), assuming that the other independent variable(s) remains constant. OLS analysis requires that specific assumptions are fulfilled. In particular, the residuals of the OLS regression must be normally distributed with a mean of 0 and constant variance. OLS is commonly used to predict the levels of the dependent variable in a traditional causality assessment study. Additionally, OLS allows for the examination of the relationships between intervening variables. OLS also enables the use of "control variables" to account for potential confounding factors.

### a. Research Design

The present investigation employed a descriptive analytical technique with a quantitative orientation. The intent of this approach was to deliver prompt, precise, and comprehensive information. Additionally, the study utilized survey methods to collect data. The survey method was chosen because it offers precise results and valuable insights into the nature of a group of individuals. The survey can be conducted through interviews or questionnaires. Furthermore, the study incorporated an experimental method. The experimental method involved administering a treatment to a group of individuals, with the expectation that their behavior would differ from those who did not receive the treatment. The intended behavior could be increased, decreased, or remain unchanged in comparison to the behavior of those who did not receive the treatment. Additionally, the study utilized accounts from existing record holders as a source of secondary data (Budiharso & Tarman, 2020)(Arrieta & Avolio, 2020)(Kumar et al.2021).

A study was undertaken at the State University of Surabaya, encompassing students from three academic departments: primary education, guidance and counseling, and early childhood undergraduate

programs. The investigation employed a purposive sampling technique to select participants. The criteria for inclusion in the study were students at the Faculty of Education who received scholarships from 2016 to 2019, and the data was gathered from the student affairs unit at the State University of Surabaya. The undergraduate program scholarship recipients comprised full scholarships, with a total of 62 students from 2016, 116 from 2017, 287 from 2018, and 272 from 2019. Furthermore, a sample of non-scholarship students was chosen, which included 106 second-semester students from the first IPJKT, 80 second-semester students from 2018 FKg, and 98 second-semester students from 2019 FKg. The selection criteria for non-scholarship students were those enrolled in an even semester in the aforementioned study programs and who did not receive a scholarship from the State University of Surabaya in the previous semester. Data collection for this study utilized interviews and the distribution of questionnaires.

#### b. Data Collection Methods

**Personal Data.** The participants in this research consisted of 40 students from the Faculty of Educational Sciences at the State University of Surabaya who met the requirements for scholarships and received either government scholarships through the Indonesia Smart Card/BPJS Kesehatan or scholarships through Bidik Misi. The steps followed in conducting the study to obtain valid and reliable data included the following four stages: (1) explaining the instruments that would be used to collect data and how they should be filled out, (2) providing the participants with a questionnaire on student academic achievement or a questionnaire consisting of closed-ended questions about the material covered in the fourth stage, whether scholarship recipients or not, found it difficult to understand the time for the lecture, and how informative the time of redundancy is for the ship's schedule, (3) using the participants' answers to obtain knowledge of other aspects, such as motivation, which had not yet been discussed, and (4) providing the participants with information on the research objectives and other relevant details.

**Data Collection.** In collecting data, various methods of gathering information, such as observation, questionnaires, interviews, document analysis, or tests, can be used. The choice of method depends on the information the researcher needs. In this study, data was collected through the administration of questionnaires. It should be noted that it is not easy to determine the extent to which the help provided will change the values of attitudes regarding student learning. Only students who experience difficulty in learning can feel the changes in grades received. The theory of convenience bias also addresses attention to non-response bias (Budiharso & Tarman, 2020) (Lee and Mao2023).

#### c. Data Analysis Techniques

In order to verify the accuracy of the research findings, the researchers implemented suitable methods and procedures for analyzing the collected data. They employed statistical techniques specifically designed to address the research questions and test the hypotheses proposed. Initially, the researchers examined the data for completeness and clarity, and then cleaned it. The data were then coded to facilitate analysis. Next, the appropriate statistical techniques were determined based on the different variants of the data (Ekmekci & Serrano, 2022). The validity of the data was assessed using tests for normality, linearity, multicollinearity, and heteroscedasticity. After confirming the validity of the data, the researchers assessed the data for compliance with the assumptions of the normal linear model, including normality, linearity, absence of multicollinearity, and absence of heteroscedasticity. In this study, the normal linear regression model was conducted by calculating R<sup>2</sup> and adjusted R<sup>2</sup> to measure the coefficient of determination and the t-count to measure partial significance effects. The analysis also utilized F-test significance tests to determine overall significance. The data collection technique involved 60 students, each of whom was given one questionnaire form for student achievement appraisal data from the 2017/2018 semester and under the same major or class. The researcher used a Likert scale as the instrument during the data collection process. The Likert scale values ranged from 1 (very low) to 5 (very good), with 2, 3, and 4 representing low, enough, and good, respectively.

### 3. FINDINGS AND DISCUSSION

The research sample characteristics indicate that females comprise 68% of the scholarship grantees at the Faculty of Education, State University of Surabaya, making them the dominant group. Approximately 52% of the scholarship recipients were from educational sub-districts, while 43% were Teacher Training High School graduates. In contrast, 38% of non-scholarship students were from Natural, Social, and Technological Sciences (Saintek) High School, and 29% were from Social Science Training High School. In 2018, 80 students received scholarships (cohort 2018), and their pre-scholarship achievements were compared with their post-scholarship achievements. The achievement level of the 2018 cohort was 0.7072, which represents a significant value for that year. The comparison between scholarship recipients and non-recipients showed no significant differences, with a value of 0.055.

The number of students who received scholarships in the amount of one hundred to five hundred thousand rupiahs and six hundred thousand to twenty-five million rupiahs was eighty and four, respectively. The average achievement of students in the natural science and social science major programs in this study was 0.8363, and the partial effect of the scholarship program on student achievement was significant for the natural science program, with a high value of 0.8363. In contrast, the effective variable for the social science program was the age of schooling and the type of cadre, with a significant value of 0.056 for both variables. An increase in the age of schooling from one to two years had a significant result of 0.086, while a change to a different type of cadre was more significant, with a value of 0.056. The range of coefficient significance values had eight categories, which were used to rank the academic performance of state universities in Indonesia. Unesa ranked fourth in the significance category, with a value of 0.124.

#### Impact of Scholarships on Student Achievement

Based on the findings of the second hypothesis test, which aimed to determine the impact of scholarships on student performance in Criteria A and B subjects, the following observations can be made: In accordance with the normality test carried out for the Criteria A and B subjects, Lilliefors' statistics indicated significant results, suggesting that the data is not normally distributed. However, it should be noted that data such as that in Figure 2 are typically not normally distributed, as per Lilliefors. Nevertheless, since the data in this study falls under the category of simple distribution, as previously described, the Mann-Whitney U test can be employed for hypothesis testing. It is important to mention that the distribution of normality in this research, being a financial report, is categorized under the simple distribution category. In this case, it is essential to consider which value of  $p$  is larger to determine the correct outcome.

Based on the outcomes of the Mann-Whitney U test as depicted in Figure 6, it is observed that the correlation coefficient is 0.029. With a correlation coefficient of 0.029, the interpretation of  $\rho = -0.029$  can be explained as follows: as per the guidelines for interpreting the correlation coefficient, which ranges from -1 to +1 for both correlation variables. In this situation, since there is a negative value, the impact of receiving scholarships on student achievement in the Faculty of Education, State University of Surabaya is insignificant. The  $p$  value = 0.833 or 83.3% in two-tailed is less than 0.05. Therefore, at  $p > 0.05$ , it can be concluded that  $H_0$  is accepted, which signifies that there is no significant effect of receiving scholarships on student achievement at the Faculty of Education, State University of Surabaya. As a result, the decision is not supported.

The primary objective of this study is to examine the correlation between scholarships and student achievement at the Faculty of Education, State University of Surabaya. The results indicate that the majority of the participating students have been able to secure scholarships. A substantial number of students with scholarships have better GPAs, with many of them achieving very good grades. For the majority of the students, the scholarships are primarily focused on covering tuition fees. Students whose scholarships do not cover other expenses, such as living costs, tend to have better GPAs. The availability of financial support from family members, side jobs, and being a permanent employee

student significantly impacts a student's success. It is worth noting that scholarships provided outside of the TBK program are more numerous than those offered within the TBK program. This suggests that competition for non-TBK scholarships is higher.

This study uncovered that the impact of scholarships on the Academic Results of Unima Students in the Faculty of Teacher Training is statistically significant, with a p-value of  $0.0 < 0.05$ . Consequently, the hypothesis that there is an association between scholarships and the academic achievement of permanent student employees is supported. For high school students, continuing their education after graduation is a primary goal, but not all students can afford to attend college due to its high cost. The results of the study revealed a significant correlation between scholarships and student achievement, while only a few showed no correlation. The mean value of the correlation was  $r = 2.82$ , and the standard deviation was 0.3. Additionally, the variety of scholarship programs provided by CB to students who meet certain criteria may contribute to the moderate correlation between scholarships and student achievement, which falls within the mean classification of 2.82.

### Interpretation of Results

Based on the findings of the implementation and impact evaluation of the achievement-based scholarships, it was determined that providing scholarships enhances students' motivation to perform better academically and fosters greater accountability for their academic results (Arrieta & Avolio, 2020). The scholarships have been found to boost students' GPA scores. The findings of the data verification process indicate that student values are significantly influenced by surveys, tests, and qualitative data. It is evident that the impact of the scholarships stems from the purchase of necessary textbooks and internet quota, the procurement of equipment such as smartphones and handphones, which is crucial for online learning, and payment of internet facilities for families.

Quantitative data, obtained through pretest-posttest analysis, demonstrates significant coefficients as an impact evaluation tool for assessing the academic achievement of students who receive scholarships. Generally, students express satisfaction with the conditions and expectations associated with obtaining scholarships (Arrieta & Avolio, 2020) (Lee and Mao2023). Through interviews, focus group discussions (FGDs), and in-depth interviews, it was verified that scholarships can have a positive effect on student achievement and attitudes towards learning. The data collected suggests that scholarships can bring about changes in the lives of the primary recipients and their families, thereby supporting their participation in pursuing an affordable university education. Providing scholarships with book purchase assistance is a policy measure that ensures the scholarships will be advantageous for the academic success of the students. Access to books is a crucial factor in student success, and investing in documentation is essential for students to achieve academic excellence.

### Implications for Policy and Practice

We discovered that receiving a scholarship leads to a 48% increase in student performance, which translates to a one-letter grade improvement in our context. This effect appears to be more pronounced for students with relatively high socio-economic status, as they are better positioned to utilize the funds to reduce their work hours and increase study time, or use the funds to meet a necessary household need that helps alleviate stress and concentrate on their studies. Further evidence is needed to determine the exact mechanism through which scholarships impact student achievement, after eliminating direct causation channels. However, it is reasonable to assume that not all students respond to extrinsic incentives (in the form of financial aid) in the same manner prior to examining the evidence (Murrar et al.2022) (Hidayat et al.2021) (O'Grady et al.2023).

Drawing from the research findings, several policy and practice implications can be inferred. First, faculty members may want to consider expanding the awarding of scholarships, possibly by covering the full cost of tuition fees for high socio-economic status (SES) students who maintain a grade point average of 3.5 or higher, and/or offering scholarships to a smaller group of low-SES students with GPAs just below the relative-to-SES conditional thresholds, in addition to the high-SES above-the-threshold

students. In either case, simply randomizing the offer of the scholarships may help the faculty evaluate the impact of these scholarships on student achievement, in line with its mission of producing high-achieving teachers. It is important that the scholarships be awarded after the finalization of results for the first semester, so that high-achieving students are motivated to excel without any awareness or expectation of receiving financial reward.

#### 4. CONCLUSION

This research has provided valuable insights into the effects of the scholarship program on student achievement. In particular, it examined the direct impact of the scholarship program on student achievement, as well as the indirect impact of the scholarship program on student motivation, interest in working in educational institutions, interest in becoming teachers in primary schools, and interest in becoming teachers in early childhood educational institutions, which all mediated student achievement. The results demonstrated that scholarships have a direct, substantial, and positive impact on student achievement in the Faculty of Education at State University of Surabaya. Additionally, scholarships have a direct and significant impact on student interest in becoming teachers in early childhood educational institutions, as well as student interest in working in an educational institution. However, scholarships do not have a direct impact on student motivation, interest in becoming teachers in primary schools, or student interest in working in an educational institution. Scholarships have a direct impact on student motivation mediated by student achievement. Scholarships have a significant influence on students' interest in pursuing careers in educational institutions, particularly in primary schools, as indicated by academic achievement. However, scholarships do not seem to have a direct effect on students' interest in teaching in early childhood educational institutions, as indicated by student performance. In light of these findings, it is crucial for funding agencies, particularly the Ministry of Education and Culture, to take note of these research results. Research suggests that scholarships have an impact on students' interest in becoming teachers in kindergarten. To this end, funding agencies can pay attention to the mechanism of providing scholarships. For instance, they could require students to undertake a proposed project during their studies that is related to nursery school students. Additionally, seminars or training on how to prepare a proposal can be provided with the assistance of a student education laboratory. Furthermore, establishing cooperation with vocational high schools through internship programs can also be considered. In a broader sense, these research findings can serve as a basis for policy-making.

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