WHAT PREDICTS STUDENTS' ACADEMIC PERFORMANCE

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Abstract

The Performance of a higher education institution was one of the important factors determining success in producing quality graduates. Academic achievement obtained by students was considered to the success of a student and the learning system at the institution. The academic quality was also inseparable from the background of the student itself. Besides, the system and climate of teaching and learning are created in the educational environment. This study aimed to describe students' academic Performance and the factors that influence the improvement in academic performance of undergraduate students majoring in Psychology at Airlangga University. This research used a quantitative approach with a descriptive survey research design. Based on the results of research conducted, it concluded that student performance, the program of study performance, and university performance on student's academic performance, both simultaneously and partially for undergraduate students at the Faculty of Psychology, Airlangga University.

Keywords: Academic; Academic Performance; Performance; Student; Students' Academic Performance

Introduction

The quality of human resources is one of the keys to the success of a country. In Indonesia, awareness of improving the quality of human resources is increasing in facing the Industrial Revolution 4.0. They are supported by other factors such as the economy, welfare, society, etc. One of the ways to improve the quality of human resources is through higher education (Olufemi, Adediran, & Oyediran, 2018). Increasing awareness of the people of Indonesia of the importance of improving the Quality of human resources through education creates new conditions among high schools in Indonesia. This condition describes students in all corners of the country competing to achieve a target of satisfying academic results (Al-Zoubi & Younes, 2015) (Guhn, Emerson, & Gouzouasis, 2019). In line with this, (Ogweno, Kathuri, & Obara, 2014) Conditions describe increasingly fierce competition with the competition for the quality of human resources in the world of work.

According to the Law of the Republic of Indonesia, Number 2 of 1989, Article 16, paragraph (1), Higher Education is a continuation of secondary education held to prepare students to become members of the community who have academic and professional abilities that can apply, develop and create knowledge, technology, and art (Siming, Gao, Xu, & Shaf, 2015) (Alsalem et al., 2017). Higher education participants are

referred to as students (Alsalem et al., 2017). According to (Aringer et al., 2019), at the higher education level, students must be active in the teaching and learning process through existing media, such as libraries, journals, and the internet. Almost all assignments are given in higher education generally require students to look for the literature and develop their mindset for effective task completion (Zotorvie, 2017). Furthermore, academic requirements in higher education are not just following lectures. However, other provisions include the percentage of attendance in lectures, completion of assignments, and active participation in other academic activities (Gbollie & Keamu, 2017).

(Ergen & Kanadli, 2017) stated that research on student academic performance is important. Finding factors that influence student academic performance is very important for universities, lecturers, and in some cases, for students themselves (Gull & Shehzad, 2015) (Bragdon & Dowler, 2016). (Cimermanová, 2018) stated that these factors would greatly affect university academic policy, curriculum improvement, lecturers' performance assessment, and the way lecturers teach. (Neyestani, Damavandi, Shafie-Khah, Contreras, & Catalão, 2014) stated that research on student academic performance receives great attention from stakeholders in education. The aim is to find out the factors that need improvement in improving student academic performance to improve the quality of learning. In addition, (Kapinga & Amani, 2016) explained that the increasing number of students in certain fields of study must be balanced with research that can explain the academic Performance of students. This is important to do to improve the quality of lecturers and make improvements to the educational process in the future. Research conducted by (Wang et al., 2010), (Kpolovie, Joe, & Okoto, 2014), (de Fátima Goulão, 2014), and (Ellore, Niranjan, & Brown, 2014) stated that Performance academic before entering

university is the most significant influential variable.

According to (Abid, Kanwal, Nasir, & Iqbal, 2016) both factors within the student (internal) and factors outside the student (external) indicate many factors that affect academic achievement. Internal factors, among others: are intelligence, self-concept, and so forth, while external factors include: family, social status, academic environment, and so on). This research is a development of (Ahmad & Fontaine, 2013) which examined student academic achievement. The situation in Indonesia has many differences from the countries where the research is carried out, both in terms of geographical, economic, social, and cultural and education, which is very interesting to study. Geographically, Indonesia is an archipelagic country, different from Ireland, Singapore, or the United Kingdom, a country on an island or continent. As an archipelagic country, it is more difficult to distribute the same educational standards for all islands evenly. As a developing country, economic conditions in Indonesia are also different from developed countries such as the UK and Singapore, where high social inequalities still occur, indicated by differences in social strata background. This course will also make a difference in the motivation and readiness of students in studying at tertiary institutions (Gbollie & Keamu, 2017).

The Performance of a higher education institution is one of the important factors determining success in producing quality graduates (Jacob et al., 2016). Therefore, the performance appraisal must be done thoroughly on all elements contributing to the ongoing academic activities. The assessment must be guided by the value standards set by internal and external parties. One of the assessment standards for tertiary institutions as educational institutions is students' Performance, including their inputs, processes, and outputs. The most important thing to consider when the learning process takes place is the supervision of incoming

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students, improvement of student ability, achievement achieved by students, the ratio of the number of students graduating to total students, and graduate competencies (Okay-Somerville & Scholarios, 2019). The results of these achievements certainly affect students' accuracy in completing the time of the study, and the graduates produced will have the full trust of their users.

Academic planning should be done well to achieve maximum academic Performance. According to (Ergen & Kanadli, 2017), academic performance is based on two things, including academic and social integration. Motivation and enthusiasm for learning can influence the increase or decrease in academic Performance that can change one's self-confidence in learning to decrease the motivation that should arise from themselves (Gbollie & Keamu, 2017). Academic achievement obtained by students is considered the success of a student and the learning system at the institution. The academic quality is also inseparable from the student's background, besides the system and climate of teaching and learning created in the educational environment. A good GPA (Grade Point Average) certainly makes the study period target achieved with good quality. A timely study period reduces student buildup in the final semester, resulting in poor ratios and quality. Academic achievement is usually measured through the GPA. The success in obtaining a high GPA is usually influenced by many factors: the student's study hours.

Based on the background of the problem, then are there any research problem formulations that can be submitted as follows:
1) What is the students' academic Performance of majoring in Psychology at Universitas Airlangga?
2) What factors influence improving the students' academic Performance of majoring in Psychology at Universitas Airlangga?

This study aims to describe students' academic Performance and what factors influence the improvement in academic performance of students majoring in Psychology at Airlangga University. The benefit of this research is as a form of knowledge and scientific contribution regarding psychology and human resource development related to students' academic Performance.

Theoretical Review
1. Student: Backgrounds' Perspective Logic

Logically, the things that can encourage students are very influential on students in various aspects within students. Various factors influence this. The existence of these factors will certainly create several new factors. This new factor will also affect student academic outcomes. In this case, the authors chose three variables for this study: academic Performance, academic integration, and social integration (Gull & Shehzad, 2015). Students who have studied at a university or college will have academic Performance or study achievement.

The general assumption regarding academic integration is the level of adaptation of students in carrying out their studies to the academic way of life in universities (Kapinga & Amani, 2016). Students who are studying, in general, will experience a transition between two different social and academic conditions and life patterns. Students will be faced with adjustments to the new environment at colleges or universities in this phase. (Bragdon & Dowler, 2016) defined academic integration as the level of students being able to adapt to the sustainability of the academics that they are going through.

(Olufemi et al., 2018) shared four academic integration concepts: academic, social, personal emotional adjustment, and

attachment adjustments. (Siming et al., 2015) state that students who have a sense of comfort compared to students who do not have a sense of comfort logically will be different where the sense of comfort, in this case, is what is felt by students in academic and social life while studying in college. Students will feel these conditions if their environment and living conditions can positively support them in their studies (Sciarelli, Gheith, & Tani, 2020).

Students who have positive and supportive conditions and environments are more focused on student goals in pursuing studies in colleges or universities (Zotorvie, 2017). Conversely, students who have positive and supportive conditions and environments will be less focused on achieving their study goals at colleges or universities (Neyestani et al., 2014). So students who do not have this environment during their studies must adapt to an environment that is not following the level of comfort (Sciarelli et al., 2020).

2. Academic Achievement: University Oriented

Student academic achievement manifests in student learning success that shows tenacity and seriousness (Nabavi-Pelesaraei, Abdi, Rafiee, Shamshirband, & Yousefinejad-Ostadkelayeh, 2016). The definition of learning achievement, among others, is stated by Winkel in (Alsalem et al., 2017), which states that learning achievement is a testament to the success of a student's learning or ability to carry out his learning activities following the weight achieved. Meanwhile, according to (Lönnstedt, McCormick, Meekan, Ferrari, & Chivers, 2012), achievement or learning outcomes (achievement) is the realization of a person's potential skills or capacities.

Mastery of learning outcomes can be seen in their behavior, both behavior in the form of mastery of knowledge, thinking skills, and motor skills. (Ellore et al., 2014) defined learning achievement as perfection achieved by someone thinking, feeling, and doing. Learning achievement is said to be perfect if it fulfills three aspects, namely: cognitive (knowledge), affective (attitude), and psychomotor (skill). On the other hand, the achievement is less satisfying if someone has not been able to meet the targets in these three criteria (Tezer et al., 2020).

Learning achievement, which is the Result of measuring students, including cognitive aspects (knowledge), affective (attitude), and psychomotor (skills), can be known after an evaluation called achievement test (achievement test) (Siming et al., 2015). Based on some of the above understanding, it can be concluded that learning achievement is the level of ability possessed by someone in digesting information obtained in the teaching and learning process, where the learning achievement of a student is often presented in the form of symbols in the form of numbers, letters or sentences that tell the results achieved by each student in a certain period.

3. Academic Performance: Dimensions and Aspects

Performance is a measure of how consistent and good the function of a product is (Al-Zoubi & Younes, 2015). Santrock in (Bragdon & Dowler, 2016) stated that the quality of student performance is indicated by numbers, letters, and other signs that are the results of translating descriptive assessment information where the translation of descriptive assessment information into numbers, letters, and other signs is called grading. Student performance can be arranged by comparing it with the Performance of other students or by setting performance standards in advance (Ergen & Kanadli, 2017).

Empirical academic Performance can be portrayed from three dimensions: the dimensions of the student

performance, the dimensions of the program of study performance, and the dimensions of the university performance (Kapinga & Amani, 2016). Student performance dimensions include aspects of tangibles (educational infrastructure), reliability (reliability of lecturers and academic staff), responsiveness (responsivity), assurance (treatment of students), and empathy (understanding of student interests). The dimensions of the study program performance include aspects of curriculum, learning and academic atmosphere, students and graduation, human resources, academic facilities and infrastructure, research, community service, cooperation, and management systems.

The activity describes and analyzes the external and internal factors that contribute greatly to academic Performance in education administration. The dimensions of the university performance include aspects of student and graduate standards, curriculum standards, learning, academic atmosphere, research and community service, and quality assurance. For this reason, this study sets targets on these three dimensions covering all aspects covered therein.

Method

This study uses a quantitative approach (positivism) with a descriptive survey research design to explain the factors that influence students' academic Performance. Based on the data categories used, this study is a cross-sectional study, while based on the time of data collection, this study is a one-shot method.

Selection of the analysis unit was obtained after considering the suitability and limitations of data collection in this study, namely undergraduate students of semesters 5 and 7 in the academic year 2018-2019 majoring in Psychology, Faculty of Psychology, Universitas Airlangga. The sampling method in this research is nonprobability sampling with convenience sampling. The reason is that most students in semester five and semester seven have taken courses that represent the field of Introduction to Psychology and other compulsory courses relating to basic Psychological scholarship. In this study, researchers used the Achievement Index (IP) as an indicator of student academic performance in the S1 Department of Psychology at Airlangga University, and 127 students were obtained.

Research data in the form of primary data and secondary data. Primary data in the form of questionnaire data was distributed to students as research objects. Questionnaire questions in this study are related to three dimensions of academic Performance and its aspects with 60 questions. Students can provide answers using a Likert scale with a range of 1 - 5. At the same time, secondary data is student achievement index data obtained from the academic administration database Universitas Airlangga. The test instrument used is the validity test and reliability test.

Results and Discussion

In this study, data analysis will use descriptive statistical techniques and multiple linear regression models. To process data to conclude the research, it uses the help of computer applications through the SPSS 24 for Windows program.

A. Instrumental Testing

1. Validity Testing

A validity test is used to measure the validity or validity. A questionnaire is said to be valid if the questions on the questionnaire can reveal something that the questionnaire will measure. The significance test compares the value of r count with the r table for a degree of freedom (df) = number of constructs -2. If r count (for each item r can be seen in the corrected item-total correlation column)> r table and

the value of r is positive, then the item or question is valid. The following are

the results of the validity test of this study:

Table 1
The Result of the Validity Test

Variable	Item	Pearson Correlation	label	Information
Student Performance (X_1)	$X_{1.1}$	0.990	0,300	Valid
	$X_{1.2}$	0,845	0,300	Valid
	$X_{1.3}$	0,881	0,300	Valid
	$X_{1.4}$	0,991	0,300	Valid
	$X_{1.5}$	0,993	0,300	Valid
Program of Study Performance (X_2)	$X_{2.1}$	0,919	0,300	Valid
	$X_{2.2}$	0,364	0,300	Valid
	$X_{2.3}$	0,872	0,300	Valid
	$X_{2.4}$	0,917	0,300	Valid
	$X_{2.5}$	0,787	0,300	Valid
	$X_{2.6}$	0,701	0,300	Valid
	$X_{2.7}$	0,946	0,300	Valid
	$X_{2.8}$	0,948	0,300	Valid
University Performance (X_3)	$X_{3.1}$	0,859	0,300	Valid
	$X_{3.2}$	0,905	0,300	Valid
	$X_{3.3}$	0,879	0,300	Valid
	$X_{3.4}$	0,940	0,300	Valid
Students' Academic Performance (Y)	$Y_{1.1}$	0,859	0,300	Valid
	$Y_{1.2}$	0,905	0,300	Valid
	$Y_{1.3}$	0,879	0,300	Valid
	$Y_{1.4}$	0,940	0,300	Valid
	$Y_{1.5}$	0,872	0,300	Valid

(Source: Primary Data, 2019)

Based on Table 1, it can be seen that all items that measure the independent variables, namely work discipline, motivation, and compensation, and the dependent variable, namely employee performance, the entire statement items are declared valid. This happens because the whole statement item produces a calculated r-value greater than 0.300.

2. Reliability Testing

The reliability test measures a questionnaire that indicates a variable or constructs. A questionnaire is reliable if someone's answers are consistent or stable from time to time. A constructor variable is said to be reliable if it gives an Alpha Cronboach value > 0,600, as shown in the following results:

Table 2
The Result of the Reliability Test

Variable	Cronbach Alpha	Information
Student	0,968	Reliable
Program of Study	0,905	Reliable
University	0,944	Reliable
Academics' Performance	0,961	Reliable

(Source: Primary Data, 2019)

Table 2 shows that the statements in this questionnaire are reliable because they have a Cronbach alpha value greater than 0.6. This shows that for each item of a statement, users will be able to obtain consistent data. If the statement is submitted again will get an answer that is relatively the same as the previous answer.

B. Classic Assumption Testing

1. Normality Testing

The normality test aims to test whether, in the regression model, the dependent variable, the independent variable, or both have a normal distribution or not. A good regression model is to have a normal data distribution or statistical data spread on the diagonal axis of the normal distribution graph. Normality testing in this study is used by looking at the normal probability plot, which compares the cumulative distribution of the actual data with the cumulative distribution of normal data. The following are the results of the data normality test using the P-Plot graph:
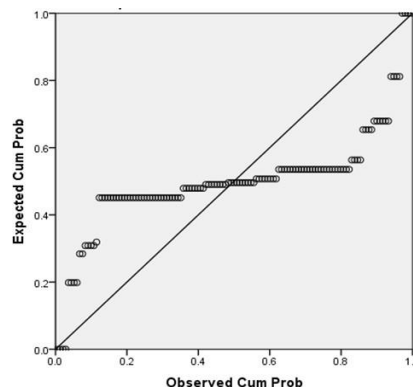

Figure 1
The Result of Normality Test Using P-Plot Graphic
(Source: Primary Data, 2019)

From Figure 2, it can be seen that the data distribution has followed a diagonal line between 0 (zero) with the meeting of the Y-axis (Expected Cum. Prob.) With the X-axis (Observed Cum Prob). This shows that the data in this study were normally distributed. Thus it can be concluded that the regression model has fulfilled the normality assumption.

2. Multicollinearity Testing

The multicollinearity test aims to test the regression model found a correlation between independent variables. A good regression model should not occur correlation between independent variables. If the independent variables are correlated, then these variables are not orthogonal. Orthogonal variables are independent variables whose correlation value between independent variables equals zero. In this study, the technique to detect the presence or absence of multicollinearity in the regression model is to look at the Variance Inflation Factor (VIF) and the tolerance value. Suppose the tolerance value approaches one and the VIF value around the number 1 and not more than 10. In that case, it can be concluded that there is no multicollinearity between the independent variables in the regression model. The following are the results of the multicollinearity test:

Table 3
The Result of the Multicollinearity Test

Variable	Tolerance VIF	Collinearity Statistics	Information
Student Performance	0,53	8,735	Non-Multicollinearity
Program of Study Performance	0,70	4,301	Non-Multicollinearity
University Performance	0,70	4,309	Non-Multicollinearity

(Source: Primary Data, 2019)

Based on Table 3, it can be seen that the tolerance value approaches the number 1, and the value of the variance inflation factor (VIF) is lower than 10 for each variable, so this means that in the regression equation, there is no correlation between independent or multicollinearity independent variables, so that all independent variables (X) can be used in research.

3. Heteroscedasticity Testing

The Heteroscedasticity test aims to test whether, in the regression model, there is an inequality of variance from one observation to another. Detecting it is by looking at the presence or absence of certain patterns in the Scatterplot graph between SRESID and ZPRED, where the Y-axis is the predicted Y, and the x-axis is the residual (predictive Y - Y) that has been standardized. The following are the results of the heteroscedasticity test:
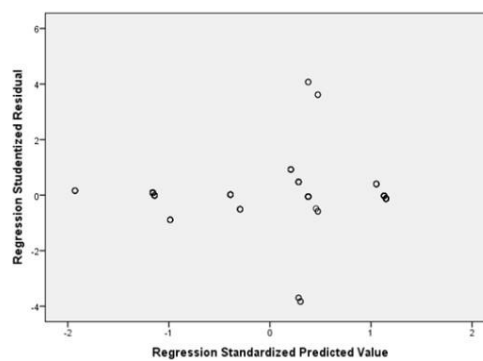

Figure 2
The scatterplot in the Heteroscedasticity Test
(Source: Primary Data, 2019)

Figure 3 shows that the data is spread above and below the number 0 (zero) on the Y-axis, and there is no clear pattern in the spread of the data. This means there is no heteroscedasticity in the regression equation model. Hence, the regression model can predict academic Performance based on the variables that influence it: students, programs of study, and universities. After testing the traditional assumptions mentioned above, it can be concluded that the linear regression equation model in this study is free from these basic (classical) assumptions, so that decision making through the F test and t-test to be carried out in this study will

not be biased or appropriate with research purposes.

C. Multiple Linear Regression Analysis

The regression equation in this study determines how much influence the independent or independent variables are student performance, programs of study performance, university performance, and students' academic Performance. The mathematical formula of multiple regression used in this study is as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e$$

Information:

Y: The dependent variable is the increase in students' academic Performance
A: Constants
b1, b2, and b3: Regression coefficients
X1: Variable of student performance
X2: Variable of the program of study performance
X3: Variable of university performance
E: error disturbances

The following are the results of multiple linear regression analysis tests:

Table 4
Multiple Linear Regression Test

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig.	95,0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-.056	.068		-.820	.414	-.192	.079
Student Performance	.891	.037	.875	23.828	.000	.817	.965
Program of Study Performance	.102	.047	.101	2.147	.034	.008	.196
University Performance	.024	.056	.021	.431	.667	-.087	.136

a. Dependent Variable: Academic Performance
(Source: Primary Data, 2019)

$$Y = -0{,}056 + 0{,}891X_1 + 0{,}102X_2 + 0{,}024X_3 + e$$

The results of the multiple linear regression equation above provide an understanding that:

1) The constant value of -0.056 means that if the student performance, program of study performance, and university performance do not exist or are equal to 0, then the students' academic Performance will be 0.056.
2) β1 (student performance regression coefficient value) is positive, meaning that if student performance increases, the resulting students' academic Performance also increases.
3) β2 (regression coefficient value of the program of study performance) is positive, meaning that if the Performance of the program of study is increasing, then the students' academic Performance is also increasing.
4) β3 (the value of the university performance regression coefficient) is positive, meaning that if the university performance increases, then students' academic Performance also increases.

D. Model Feasibility (Goodness of Fit Testing)

The goodness of fit test is used to test the feasibility of the model used in research. The goodness of the Fit model can be seen from the value of the F test (analysis of variance / ANOVA). The F test shows whether all independent variables entered in the model can be declared feasible if the probability value is < 0.05 or inappropriate if the probability value is> 0.05. The following are the results of the Goodness of Fit testing:

Table 5
The Result of ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72,807	3	24,269	3043,27	0,000ᵃ
	Residual	0,766	96	0,008		
	Total	73,573	99			

(Source: Primary Data, 2019)

The table above shows the F test value with a significance level of 0,000 (under (0.05) of 3043.27. If the probability value is less than 0.05, then the regression model is feasible to predict the simultaneous influence of the independent variable. Based on the significance level, it is concluded that H0 is rejected and Ha is accepted, which means that the independent variables consisting of student performance, a program of study performance, and university performance together have a significant effect on the dependent variable, namely students' academic Performance.

E. Multiply Determination Coefficient Analysis (R²)

The coefficient of multiple determination (R2) aims to determine the independent variable's contribution or overall contribution to the dependent variable, and the rest is influenced by the independent variable that is not included in the model. As explained as follows:

Table 6
Determination Coefficient (R²)
Model Summary

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	.995ᵃ	.990	.989	.08930

a. Predictors: (Constant), student, program of study, university
b. Dependent Variable: academics' Performance

(Source: Primary Data, 2019)

An R2 value of 0.990 or 99% shows that the variable of students' academic Performance that can be explained as variables of student performance, the program of study performance, and university performance is 99%. In comparison, the remaining 1% is explained by other factors not included in this research model. The coefficient of determination and multiple correlation coefficients show the R-value of 0.995. This means that the relationship or correlation between factors that influence students' academic Performance is strong because > 0.50.

F. The Hypothesis Testing (t-Test)

The hypothesis testing uses the t-test to determine the overall effect of the independent variable on the dependent variable by comparing the significant t value with a 95% real level. This study uses a probability of 95% significance level or α = 0.05 so that it can be seen the effect of individual independent variables with the criteria if t is significant < α = 0.05, it can be said that the independent variable has a significant effect on the dependent variable. If t is significant > α = 0.05, it can be said that the independent variable has no significant

effect on the dependent variable. The following are the results of testing the

hypothesis in this study:

Table 7
The Result of the t-Test

Model	t	Sig.
Student	15.576	0.000
Program of study	3,855	0.000
University	3,822	0.000

(Source: Primary Data, 2019)

Based on the multiple regression test calculations listed in the above table, the test results provide an understanding that:

1) The effect of student performance on student's Academic Performance. Based on the results of the table 7 calculation, the regression coefficient value is positive, and the significance value for a student is α = 0,000 < 0.05, indicating that student performance has a significant effect on student academic performance. So H1, which states the alleged influence of student performance on students' academic Performance, is accepted.

2) The effect of the program of study performance on student's Academic Performance. The results of the calculation of table 7, the regression coefficient value are positive, and the significance value for the program of study performance is α = 0,000 < 0.05, indicating that the program of study performance has a significant effect on students' academic Performance. So H2, which states the alleged influence of the program of study performance on students' academic Performance, is accepted.

3) The effect of university performance on student's Academic Performance. The results of the calculation of table 7, the regression coefficient value is positive, and the significance value for university performance is α = 0,000 < 0.05 indicating that university performance

has a significant influence on students' academic Performance. So H3, which states the alleged influence of university performance on students' academic Performance, is accepted.

Conclusion

Based on the results of research conducted, it can be concluded that student performance, a program of study performance, and university performance on student's academic performance, both simultaneously and partially for undergraduate students at the Faculty of Psychology, Universitas Airlangga. One of the assessment standards for universities as educational institutions is students' academic Performance, including input, process, and output. The most important thing to consider when the learning process takes place is the supervision of incoming students, improvement of student ability, achievements of students, a ratio of the number of students graduating to total students, and graduate competencies.

The results of these achievements certainly affect students' accuracy in completing the time of the study, and the graduates produced will have the full trust of their users. The recommendations we propose in this study include 1.) The Faculty of Psychology, Universitas Airlangga, needs to encourage an increase in the number of lecturers with Doctor / Ph.D. qualifications so that the impact on improving lecture services can increase; 2.) The Faculty of Psychology, Universitas Airlangga, needs to develop

instruments to monitor and evaluate the academic services of lecturers to students.

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