Comparison of Independent and Regular Student Learning Outcomes Based on the Grade Point Average

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ABSTRACT

Padang State University is one of the universities in West Sumatra that produces competent graduates in their fields, one of which is the Informatics and Computer Engineering study program. UNP recruits prospective students through the regular (R) and independent (M) routes, so that there is a public perception of the differences in the entry routes. Where the entry path that is in great demand by the public in general is the R path. So there is a gap and paradigm from the community, where the R path is better than the M path. This is what underlies the author wanting to know the comparison of the learning outcomes of Student M with Student R. Here the author compares the results M students study with R students based on the Grade Point Average (GPA) in the PTIK study program. This study aims to compare the learning outcomes between students who enter the R and M pathways which can be seen from the GPA of each student according to the entry path, as evidenced by hypothesis testing and research requirements to obtain some data about descriptive data on students of the PTIK study program so that it is known between credits per semester (X) and also a GPA of a significance value of 0.409 for independent students and a significance value of 0.258 for regular students. The conclusion obtained is that there is a positive and significant relationship between R and RM of PTIK students from 2014 to 2017. From the results of the study, it is known that the data obtained are not significantly different from learning outcomes in the form of GPA of R and RM students in the even semesters from January to June of that year, 2017.

Keywords: Students Learning, GPA, UNP, PTIK.

1. INTRODUCTION

Universitas Negeri Padang (UNP) have the faculties such as the Faculty of Engineering ((FT). Where FT already has six (6) major. Of the six majors One of its majors is Electronics Engineering is divided into three courses of study (Prodi.) Including S1-Electronic Engineering Education (PTE), D3-Electronic Engineering (TE), the last is S1-Informatics and Computer Engineering Education (PTIK).

In the book that became the guidelines of academic UNP contains about Vision, Mission and Objectives of the founding of Prodi. PTIK, FT UNP is that in 2020 this study program will excel at the National level and graduate students who have innovative, independent personalities, always pious and have character in the field of PTIK [1].

At the present time many State Universities (PTN) that have been opened and perform acceptance new Student both lines Regular (R) and Independent Regular (RM). Where students who do not pass on the track R can register on the path RM. Interest open

its selection next that RM will be used as a source of alternative other than the students candidate were not able to pass the track SBMPTN and SNMPTN, in this selection are listed in the decree made by the Directorate General of Higher Education [2]–[8].

However, there is still a public perception that compared to student R, students who enter through RM have lower academic achievement.

Several previous studies also support this research. Renol Fitria Asdi concluded that the use of facilities and infrastructure, achievement and attitudes have an important influence on the GPA of students in learning planning. PTE UNP [9].

Mutia Ahsanul Husna, also explained about the use of digital libraries and interest in reading can contribute to the GPA [10].

Taufik Hidayat examines the comparison of various methods of learning and learning outcomes, including the results of the cooperative learning model with the type of team assisted personalization is better than the results of the problem based learning (PBL) model [11].

Learning outcomes are defined as a form of knowledge that students have learned so far, namely the final result. According to student learning abilities, student learning outcomes can be in the form of high, medium and low scores. Have two factors that affect the learning effect of which internally well as external [12][15][16].

When viewed in students, learning outcomes are considered to have a really good level of intellectual development than before learning. The level of success of the learning process depends on the activity of lecturers and students. Academic achievement assessment can be done in the form of a letter from the student's GPA, or in the form of numbers.

This study was aimed at providing comparisons so that causality was found. For more detailed information, as follows:

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┌──────────┐        ┌──────────┐
│    X     │ ─────▶ │    Y     │
└──────────┘        └──────────┘
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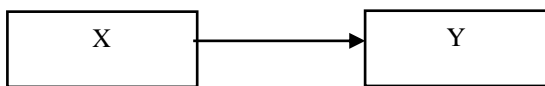
Description:

X   = Comparison of the R pathway students with the RM pathway students in the Study Program of PTIK FT-UNP.

Y   = learning outcomes

➤   = Relationship

The aim would be obtained on the research that is for describe relationships between each of the courses that will be tested on this course with student results R and RM. PTIK FT-UNP can be seen from the 2014-2017 academic year.

2. METHOD

Techniques are performed in order to collect the data including methods of documentation and field observations in the study. Which describes the differences in learning outcomes between R students and RM students in the Electronics Engineering Department, FT-UNP, study program PTIK in 2014-2017.

The population is the entire unit of observation which can meet the requirements or phenomenon that has been determined, so that the population will be a source of conclusion about the phenomenon [13].

Samples interpreted a part of the pitch taken from a population, then the number of the population is taken as part of the sample for represents the entire population [14].

Table 1. Population and sampel of research

Entry year of Student	R	RM	Total
2014	19	22	41
2015	18	22	40
2016	17	18	35
2017	25	21	46
Total	79	83	162

Based on table 1 above, sample data from 162 students were obtained in the form of secondary data (including 79 R data and 83 RM data), data obtained from document data collection was based on PUSKOM to R Pathways and RM 2018 2014-2017 semesters. Summary of GPA of PTIK students. BAAK - UNP.

Analysis of the data contained in the above is what shows the data that tar obtained from the subject is converted into quantitative data through statistical methods, and processed through the SPSS application. The first hypothesis testing technique is completed through prerequisite testing, namely testing for normality and linearity.

2.1. Normality Testing

Can be used to provide instruction about the distribution of data in get in populations ter normal distribution or any abnormalities.

2.2. Homogeneity Testing

This aims to explain how the research sample has the same and uniform conditions through the Bartlett test.

2.3. Hypothesis Testing

This was done to determine the correlation between students' R and RM, using the product moment correlation formulas made by Pearson which were useful for comparing student learning outcomes

$$r_{hitung} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}} \quad (1)$$

The description:

r count = correlation coefficient between one item and the total item

$\sum X$ = the total of each item

$\sum Y$ = total of all items

$\sum XY$ = total product of X and Y

3. RESULT AND DISCUSSION

Based on the data collection technique, the previous data has been sampled, so the sample size is 162 consisting of 79 R students and 83 RM students, so it can be seen the frequency distribution data (initial distribution) from the following table:

Table 2. Distribution of the frequency of students' results for the 2014 to 2017 R PTIK lesson plans.

Statistic		
GPA of R students		
N	Validitas	79
	Missing	0
Mean(average)		3.2027
Standard Error of Mean		.02978
Median(middle value)		3.2400
Mode		3.33a
Standard Deviation		.26471
Variance(difference)		.070
Skewness		-.633
Standar Error of Skewness		.271
Kurtosis		-.015
Standar Error of Kurtosis		.535
Range(extent)		1.14
Minimum		2.51
Maximum		3.65
Sum(Total)		253.01
Percentiles	25	3.0400
	50	3.2400
	75	3.3900

From Table 2 , in the general data early category, the interval category 3.20-3.40 has the highest frequency, with a maximum number of 19 people (17.6%), and the interval category with the lowest frequency is 3.60-3.80, with a maximum number of 2 people (2.9%). The data above can be seen through the following histogram:
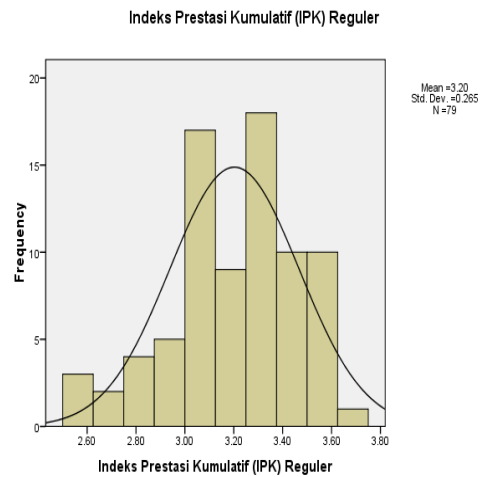

Figure 1 Histogram GPA R Students.

Based on Figure 2, it can be seen that the analysis uses the SPSS program. In addition, the following table describes the frequency distribution of RM student learning outcomes:

Table 3. Formatting sections, subsections and subsubsections.

Statistic		
GPA of RM students		
N	Validitas	83
	Missing	0
Mean(average)		3.1406
Standard Error of Mean		.02625

Median(middle value)		3.1400
Mode		3.48
Standard Deviation		.23916
Variance(difference)		.057
Skewness		-.265
Standar Error of Skewness		.264
Kurtosis		-.246
Standar Error of Kurtosis		.523
Range(extent)		1.12
Minimum		2.57
Maximum		3.69
Sum(total)		260.67
Percentiles	25	2.9700
	50	3.1400
	75	3.3100

In the table frequency data interval RM mode lies in the range of 3.20 to 3.40 by the number of 17 students (38.7%) as well as the frequency RM most minor among grade interval of 2.60 to 2.70 with the number 1 for 3,2% . It can be seen histogram below this :
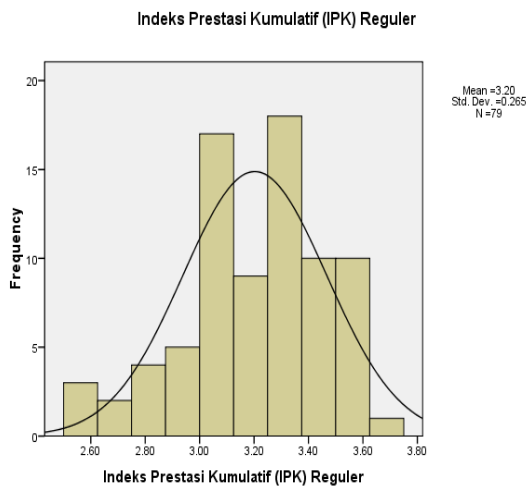

Figure 2 Histogram of student learning outcomes RM

After that, the normality test is carried out in each class, namely in class R, it will be known in table 4 below:

Table 4. Normality Test of Class R

One-Sample Kolmogorov-Smirnov Test			
		Grade Point Average (GPA) R students	Semester Credit
N		79	79
Normal Parameters	Mean(average)	3.2027	5.00
	Standard Deviation	.26471	2.670
Most-Extreme Difference	Absolute	.113	.186
	Positive(+)	.057	.186
	Negative(-)	-.113	-.131
Kolmogorov-Smirnov Z		1.006	1.652
Asymp. Signifikan (2-tailed)		.264	.009

In Table 4, type R through the normality test concluded that the data were normally distributed. Table 5 describes the stages of testing carried out in the RM class.

In Table 5, for the RM category, the test data are normally distributed.

Table 5. Normality test on the RM class

One-Sample Kolmogorov-Smirnov Test			
		Grade Point Average (GPA) RM student	Semester Credit
N		83	83
Normal Parameters	Mean	3.1406	5.59
	Std. Dev	.23916	2.794
Most Extreme Differences	Absolute	.071	.185
	Positive(+)	.054	.185
	Negative(-)	-.071	-.163
Kolmogorov-Smirnov Z		.645	1.688
Asymp. Sig. (2-tailed)		.800	.007

After a normal test conducted on two types of data showed that the KS test has a significant value in 1006 amounted to variabe I hasi I Be I teach conventional, as well as free-form selections is 0.645. This value is greater than 0.05 which proves that the

data distribution is normal. The test results show that it meets the normality test requirements. Researchers conducted a Linerity test in a regular course, it can be shown in Table 6.

Table 6. Normality test on the RM class

ANOVA VARIABEL Y ATAS X			Sum of Squares	df	Mean Square	F	Sig.
Grade Point Average (GPA) R * Semester Credit	Between Groups	(Combined)	1.434	7	.205	3.606	.002
		Linearity	.048	1	.048	.853	.359
		Deviation from Linearity	1.385	6	.231	4.065	.001
	Within-Groups		4.032	71	.057		
	Total		5.466	78			

In Table 6, the regular category linearity test shows that the data are linear. Linearity test was also performed on independent Regular data, as shown in Table 7.

Table 7. Summary of Anova Variable Y on the X the Independent Regular (RM)

ANOVA VAR Y ATAS X			Sum of Squares	df	Mean Square	F	Sig.
Grade Point Average (GPA) Independent * Semester Credit	Between Groups	(Combined)	.811	6	.135	2.648	.022
		linearity	.074	1	.074	1.449	.232
		Deviation from linearity	.737	5	.147	2.888	.019
	Within Groups		3.879	76	.051		
	Total		4.690	82			

From Table 7 that the data RM linear. In the linearity test of the two types of data, it was concluded that if Sig> 0.05 indicates a value that deviates from linearity, then the relationship between the predictor variable and the trend variable is linear.

After analyzing it, it is known that the predictor variable semester credit in regular class deviates from the linearity value in Sig. There is no linear relationship between 0.01 <0.05. For the predictor of credit per semester for regular independent classes, the linear deviation value is obtained, namely Sig.

0.019> 0.05, it can be concluded that there is a linear relationship.

Product moment correlation analysis and correlation significance testing are used in statistical hypothesis testing. Regular student class relationship analysis can be seen in Table 8.

Table 8. Results of the analysis of the correlation and meaning of the correlation on the GPA and Credits per semester of the student squad.

Correlations		Grade Point Average (GPA) Regular	Semester Credit
Grade Point Average (GPA)	Pearson Correlation	1	.094
	Sig. (2-tailed)		.409
	N	79	79
Semester Credit	Pearson Correlation	.094	1
	Signifikan (2-tailed)	.409	
	N	79	79

Which will include an independent regular student correlation analysis. namely in Table 9.

Table 9. The result of the analysis of the correlation and the significance of the correlation on the average credit score (GPA) and SKS of ordinary independent students.

		Grade Point Average (GPA) Regular Independent	Semester Credit
Grade Point Average (GPA) Regular Independent	Pearson Correlation	1	.126
	Signifikan (2-tailed)		.258
	N	83	83
Semester Credit	Pearson Correlation	.126	1
	Signifikan (2-tailed)	.258	
	N	83	83

In correlation analysis in Table 8 and Table 9, it is known that between SKS semester (X) R student's GPA 0.409 significance value, and the value of the significance of RM 0.258 students. Data analysis using SPSS 16.00 software shows that according to

the GPA of students obtained through the R selection and the significance level of RM Prodi students, there is no significant difference in academic achievement during the January-June 2017 semester. Department of Electronics Engineering, FT-UNP PTIK. References used in taking decision is the reference probability / significance is more than 0.05, the initial hypothesis is accepted, and with probabilities/small significance of 0.05, then H0 rejected.

Based on the data above, it shows that the GPA value of RM students does not necessarily get lower learning outcomes than student R. Students R do not always achieve very high learning outcomes with RM students. Because the results of school learning for each student to develop their potential as well as possible.

The results of the analysis of the correlation test and significance, it can be assumed that there is a very positive and significant relationship between enrolment and student learning outcomes on the lesson plan. Informatics Engineering Education, FT UNP.

4. CONCLUSION

References based on the analysis and discussion of the results of the research, the researcher can conclude that the GPA learning outcomes of self-selected students from January to June 2014-2017 and regular selection students majoring in PTIK in 2014-2017 are not significant. However, this difference depends on the student's ability. To achieve optimal achievement, a student must go through a series of activities related to lectures in an orderly manner, read source books, do assignments, understand various theories and do practical work in workshops. To carry out all the above activities properly, each student should be more careful in determining attitudes and managing study loads according to their abilities. In addition, students in developing themselves cannot be separated from various hindering problems, sometimes they can fail in achieving their goals. This problem arises because of the social, economic, cultural and individual development of each student, therefore the role of an academic advisor is expected to help student's learning difficulties on campus in achieving their goals.

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