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Comparison of Mathematics Learning Achievement in Students Admission Zoning and Non-zoning at Senior High School

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Abstract

This study aims to determine the effect of the acceptance of new students through the zoning system on mathematics learning achievement through the comparison of student achievement before going through the zoning system and through the zoning system. Quantitative research uses data on students mathematics learning achievement scores. This study uses quantitative research to process data in the form of numbers. The data is in the form of learning achievement scores for student math. The dependent variable used is mathematics learning achievement. This study used 58 samples for students before going through zoning and 59 students through the zoning system. The analytical method used is the Mann Whitney comparison of two unpaired samples. The results showed that the statistical value of 0.000 <0.10 with the average students addmision before going through the zoning system was 82.00 and students addmision through the zoning system was 78.63. Thus, the results of the study show that there is a significant difference between the mathematics learning achievement of students addmision students before going through the zoning system and PPDB through the zoning system. Therefore students addmision through a zoning system can affect students' mathematics learning achievement.

Keywords:
Students Admission, Zoning Sistem, and Learning Achievement

INTRODUCTION

Indonesia seeks to increase educational equity and improve the quality of education through the acceptance of new students by implementing a zoning system in accordance with government regulations. This regulation is regulated in the Regulation of the Minister of Education and Culture No. 17 of 2017 concerning New Student Admission (PPDB) in Kindergarten, Elementary School, Junior High School, Senior High School, Vocational High School, or other equivalent form.

Permendikbud No. 17 of 2017 emphasizes the distance from the student's residence to the school according to the domicile listed on the family card. This makes students who live near the school have a greater opportunity to get educational services at the school. With this regulation, students get educational services without discrimination and other students have the opportunity to get formal education regardless of economic conditions or students' cognitive abilities (Astuti, 2020).

The policy for implementing the zoning system in PPDB is still relatively new. This system has been implemented since the beginning of 2016 in stages starting with the implementation of the national exam by implementing a zoning system. In the following year the zoning system began to be applied to PPDB based on Permendikbud No. 17 of 2017 then in 2018 it was refined through Permendikbud No. 14 of 2018 this was stated by Hamid Muhammad (Dirjen Dikdasmen). Until now PPDB through the zoning system is still being applied as an effort to equalize education in Indonesia (Kemdikbud, 2018).

The purpose of the zoning system is basically to equalize the quality of education in Indonesia. As stated by Muhadjir Effendy that access to education can be obtained from the zoning system. In addition, the zoning system aims to eliminate the labeling of favorite and non-favorite schools, there is no discrimination and seeks to make the quality of schools in Indonesia of the same good quality (Kemdikbud, 2018).

In practice, the implementation of the zoning system has pros and cons among the community. The pros and cons that occur in the zoning system are divided into three major themes. First, priority is the distance of residence. second, differences in interpretation regarding the implementation of zoning rules so that their application is different in each school and region. Third, the use of a Certificate of Incapacity (SKTM) which in practice becomes an opportunity for fraud {Formatting Citation}(Syakarofath, 2020). Some groups gave a positive response to PPDB zoning which is considered to have the ability to provide more access for students from low-income groups. For parents who have difficulty paying for their child's tutoring, they are no longer a burden or dependent. In addition, limited transportation does not become an obstacle because to go to school can be done by walking. As for schools, the existence of this system makes students' abilities vary so that schools in the area have the opportunity to develop the quality of education in the area. This is what motivates teachers to develop their capacity to produce quality students and have better learning achievements (Syakarofath, 2020).

Negative responses also developed in some circles. Based on the evaluation of PPDB through the zoning system, it has received various criticisms from the community. The implementation of PPDB is felt by the community to make it difficult for parents to choose good quality schools for their children. In addition, several schools are concentrated in an urban area, making it difficult for people living in the suburbs to

choose a school (Syakarofath, 2020). As happened, hundreds of parents demonstrated at the NTT Education Office and the NTT DPRD, complaining about the PPDB zoning system because their children did not get good quality schools. The protest took place in Kupang, East Nusa Tenggara (Wahyuni, 2018). The same thing also happened in Jakarta, when the age criteria became one of the main things in the PPDB selection through zoning resulting in hundreds of parents visiting the DKI Jakarta City Hall and according to Anies Baswedan to eliminate the policy (Wahyuni, 2018).

In responding to the growing pros and cons, Anis Baswedan explained that the implementation of the zoning system was considered to be able to improve the quality of schools this year. This is because the implementation of the zoning system in the long term can make certain schools have the same quality and quality standards (Kemdikbud, 2018). Ratiyono as the Head of the DKI Jakarta Education Office ensures that favorite schools in the capital will not exist in the 2019-2020 school year. According to Ratiyono, all schools in Jakarta must have the same competency standards, in order to produce students with the same quality.

In addition, many teachers complain that students through the zoning system have lower learning abilities than students who use the achievement path. Students who are accepted through zoning have difficulty understanding the learning material. Meanwhile, the quality of students' learning abilities before the implementation of the zoning system was relatively quick to understand the material provided. As a result, many students who go through the zoning system get scores below the average (Hidayat, 2019). In addition, students through zoning have less fighting power than students who were accepted before the zoning policy. As a result, the quality of students after the zoning system is not good. The condition of students through the zoning system is more diverse. This is a challenge for teachers to be able to further improve their skills in educating students well in order to obtain good learning achievements (Risma, 2012).

From the previous explanation, the zoning system can have an influence on several things, including learning achievement. The research that there was a zoning PPDB that had a negative influence on learning achievement (Pramartha, 2020). This is the same as Desi Wulandari's research which states that the zoning system has a strong and significant influence on learning achievement. The better implementation of PPDB will create a good learning process and learning achievement (Pramartha, 2020).

This research was conducted to prove the truth of the notion that the zoning system can affect student achievement. However, judging from several previous studies, the data collection of independent variables was based on students' perceptions of the acceptance of new students through filling out a questionnaire. However, there is no research that uses a comparison of student scores before and after zoning. Therefore, the researcher offers a different approach by comparing the values before and after zoning.

METHODS

This research is a type of quantitative research. Quantitative research is research that examines samples from populations to obtain data so that conclusions can be drawn (Sugiyono, 2017). Quantitative is used to process data on the form of numeric. This study uses secondary data obtained from a second party in the form of mathematics learning achievement. The population of this research is the students of class X in 2015/2016 and 2020/2021 at Senior High School. The population students of class X in 2015/2016 is non zoning and 2020/2021 is zoning system. The sample used uses the opinion of Slovin who suggests that the number of samples is representative then the total population is divided by one plus the number of populations multiplied by the

standard error (Nalim, 2013). The determination of the sample size is in accordance with Slovin's opinion so that the number of samples is representative (Nalim & Salafudin, Descriptive Satistika, 2012). From the population visited by 140, 58 samples were obtained for class X in 2015/2016 and the population visited was 148, obtained 60 samples for class X in 2020/2021. The sampling used in this study added simple random sampling. Simple random sampling is a random sampling regardless of level (Sugiyono, 2017).

There are two variables in this study, namely the independent variable and the dependent variable. The independent variable in this study is the acceptance of students through the zoning system while the dependent variable is learning achievement. The data collection technique used is documentation. Documentation is data collection carried out by recording data obtained from a research location (Kiswanto, 2013). The data referred to in this study is the value of mathematics learning achievement obtained from student report cards. This study is to determine the effect of student interaction through the zoning system of student mathematics learning by comparing the learning achievements of PPDB participants before going through the system and PPDB.

RESULT AND DISCUSSION

The discussion was carried out descriptively and analyzed from the data obtained through research activities. This study discusses the differences between PPDB before going through the zoning system and PPDB through the zoning system by comparing report cards obtained from secondary data, namely mathematics subject teachers and education staff at SMA Negeri 1 Bojong.

In accordance with the explanation in chapter III that the data collection process uses documentation. Based on research data on February 24, 2021 at SMA Negeri 1 Bojong, researchers obtained learning achievement data in the form of grade X report cards at PPDB before zoning and through zoning, namely 2015/2016 and 2020/2021. In this case the value of the report card in question is the value of the report card in mathematics.

The population which is a generalization area has certain qualities and characteristics according to Sugiyono's explanation. While the sample is part of the generalization area (Sugiyono, 2017). The sample size was taken using the Slovin formula with a significance level of 10%.

Based on the data obtained from the grade X report cards of SMA Negeri 1 Bojong, it was then analyzed through the SPSS (Statistical Product and Service Solutions) version 22 program. The results of the descriptive analysis can be seen in the table below:

Table 1.
Descriptive Statistical Values of Students' Mathematics Learning Achievement at PPDB before going through the 2015/2016 Zoning System

	N	Minimum	Maximum	Mean	Std. Deviation
Student's Mathematics Learning Achievement Before Going Through the Zoning System	58	76	90	82.00	4.031
Valid N (listwise)	58				

According to table 1 there are 58 students as samples for PPDD before going through the zoning system. The minimum score for students' mathematics learning achievement according to the table above is 76. While the maximum score is 90 with an average of 82.00 and a standard deviation of 4.031.

Table 2.
Descriptive Statistical Values of Students' Mathematics Learning Achievement at PPDB through the 2020/2021 Zoning System

	N	Minimum	Maximum	Mean	Std. Deviation
Student's Mathematics Learning Achievement Through the Zoning System	60	77	80	78.63	1.025
Valid N (listwise)	60				

In table 2 it can be seen that there are 60 students as a sample for PPDB students through the zoning system. The lowest score of student learning achievement in mathematics obtained at PPDB through the zoning system is 77. While the highest score is 80 with an average of 78.63 and a standard deviation of 1.025.

Based on the description above, it was found that the average value of PPDB students before going through the zoning system was 82.00. While the average value of PPDB students through the zoning system is 78.63. Then it can be seen the difference in the average PPDB before going through zoning and PPDB through zoning is 3.37.

Normality Test

Normality test to determine if the data is normally distributed or not. This test aims to determine the distribution of data from each variable (Maheasy, 2020). This test is one of the requirements for hypothesis testing. Kolmogorov-Smirnov Test is one of the tests that can be done to test the normality of the data with a significance level of 0.10. Decision making according to Nuryadi (Nuryadi, 2017)

1) The data is not normally distributed if the value of sig. < 0.10

2) The data is normally distributed if the value of sig. > 0.10.

Table 3.
Normality Test of Non Zoning PPDB

		Total Score
N		58
Normal Parameters[a,b]	Mean	82.00
	Std. Deviation	4.031
Most Extreme Differences	Absolute	.259
	Positive	.259
	Negative	-.151
Test Statistic		.259
Asymp. Sig. (2-tailed)		.000[c]

Table 3 shows the significance value (Asymp. Sig. 2-tailed) for the value of mathematics learning achievement in PPDB before going through the zoning system is 0.000. That is, the significance value (Asymp. Sig. 2-tailed) < 0.10, then the variable is not normally distributed.

Table 4.
Students Admission Normality Test Through the Zoning System

		Total Score
N		60
Normal Parameters[a,b]	Mean	78.63
	Std. Deviation	1.025
Most Extreme Differences	Absolute	.198
	Positive	.198
	Negative	-.173
Test Statistic		.198
Asymp. Sig. (2-tailed)		.000[c]

According to table 4, it can be seen that the value of sig (Asymp. Sig. 2-tailed) for the value of learning achievement in PPDB through zoning is 0.000. This means that the value (Asymp. Sig. 2-tailed) or probability value < 0.10 so that the variable is not normally distributed. Based on the normality test in the PPDB group before going through the zoning system and PPDB through zoning, the significance value of both is less than 0.10 so it can be said that they are not normally distributed.

Homogeneity Test

Knowing a variable x and y have the same variance can be done by testing the homogeneity of the data. Through Levene's Test This research test tests homogeneity. The decision-making criteria in the Levene's Test are as follows:

1) Variance of data is not homogeneous levene statistic value < 0.10

2) Variance of homogeneous data value of levene statistic > 0.10.

Table 5.
Homogeneity Test

Levene Statistic	df1	df2	Sig.
125.047	1	116	.000

Judging from the results of the homogeneity test that the sig value is 0.000. It means the value of sig. smaller than 0.10. So based on the provisions of the homogeneity test decision making, it can be said that the variance of mathematics learning achievement between students who went through PPDB before zoning and PPDB through zoning was not the same or not homogeneous.

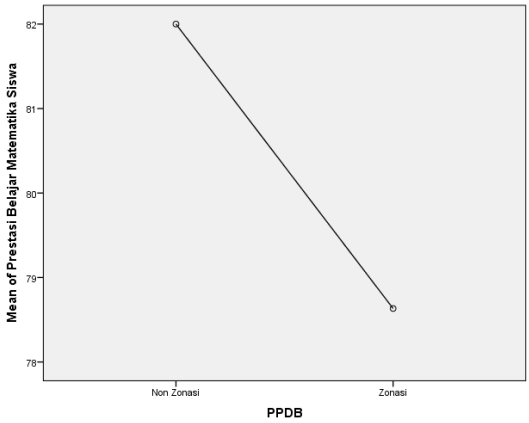

Figure 1
Plot of Homogeneity Test Results

Figure 1 above shows that there is a significant difference between PPDB students' mathematics learning achievement before going through the zoning system and PPDB through the zoning system.

Hypothesis testing

Because the two prerequisite tests explain that the test results are not normally distributed and are not homogeneous. Therefore, parametric statistical tests cannot be performed. So to test the hypothesis using non-parametric. Non-parametric tests do not require specific parameters for the observed population and there is no requirement that the data are normal. The test used is the Mann Whitney test. The Man Whitney test is an alternative test of two different parametric averages by using a t distribution reference on a small sample (Trimawartinah, 2020). This test is used in comparative research. The Mann Whitney test is intended to test the difference in the mean of the independent population. The research hypothesis to be tested using the Mann Whitney test is as follows:

Ho = There is no significant difference between students' mathematics learning achievement in PPDB before going through the zoning system and PPDB through the zoning system.

Ha = There is a significant difference between students' mathematics learning achievement in PPDB before going through the zoning system and PPDB through the zoning system.

The decision making of the Mann Whitney test (Suyanto, 2017) is as follows:

a. Ho is rejected and Ha is accepted, if the P-value (Sig.2-tailed) < 0.10 then.

b. Ha is rejected and Ho is accepted, if the P-value (Sig.2-tailed) > 0.10.

Tabel 6.

Mann Whitney Test

	Students Mathematics Learning Achievement
Mann-Whitney U	826.000
Wilcoxon W	2656.000
Z	-5.013
Asymp. Sig. (2-tailed)	.000

Table 6 can be seen that the value of the Asymp sig. Sig. 2-tailed is less than 0.10 i.e. 0.000. Based on the Mann Whitney test criteria, a significance value of less than 0.10 means rejecting Ho and accepting Ha. Therefore, the hypothesis that there is a difference between students' mathematics learning achievement in PPDB before going through zoning and PPDB through zoning is acceptable. So it can be concluded that PPDB through the zoning system can affect students' mathematics learning achievement.

CONCLUSION AND IMPLICATION

Conclusion

This study aims to determine the effect of new student admissions through the zoning system on students' mathematics learning achievement by comparing the value of mathematics learning achievement on PPDB before going through the zoning system and PPDB through the zoning system. It is known that the difference in the average value of students' mathematics learning achievement in zoning and non-zoning PPDBs is 3.37, with an average non-zoned PPDB of 82.00. While the PPDB through the zoning system is 78.63. The results of the analysis according to the Mann Whitney test can be concluded that H0 is rejected and Ha is accepted. That is, there is a significant difference between the mathematics learning achievement of PPDB students before going through the zoning system and PPDB through the zoning system. Therefore PPDB through the zoning system can affect students' mathematics learning achievement..

Implication

Based on the research that has been done, there are recommendations for further researchers in research related to the acceptance of new students through the zoning system on students' mathematics learning achievement. Recommendations as follows:

1. It is hoped that future researchers will use a larger sample size so that data analysis is more accurate.

2. It would be nice if the data analysis in hypothesis testing used parametric analysis so that the data produced was better

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