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## **COMPARISON OF STUDENTS' MATHEMATICS LEARNING ACHIEVEMENT ON ENVIRONMENTAL DEVELOPMENT AND REGULAR PATHWAYS**

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### **ABSTRACT**

Based on the Bandar Lampung City Regional Regulation Number 1 of 2012 concerning the Implementation of Education which frees school fees for poor families, of course it has a very positive impact on reducing the increase in early age unemployment, but on the other hand it is possible that it can have a negative impact when the entrance test for new students is eliminated. alone will affect the achievement of student learning outcomes. Therefore the purpose of this study was to test whether there were differences in achievement in mathematics learning outcomes between students from the Affirmation/Environmental Development pathway and Regular pathway in Odd Semester for class VII SMP Negeri 12 Bandar Lampung in the 2022/2023 academic year. The research method uses a quantitative descriptive research method. The data collected was taken from the results of midterm and final semester tests processed using the two-sample Mann Whitney test formula. Based on the research results, it is known that there is no significant difference in student performance on the environmental development/affirmation track and the regular track.

**Keywords:** Environmental Development Path, Learning Outcomes, Regular Track

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### **PRELIMINARY**

Education is very important in producing quality Human Resources, so that whether a country is advanced or not is influenced by educational factors (Syazali et al., 2021). Education is the main factor in the formation of quality character in relating, behaving, acting, and thinking. It is determined by the spirit, values and goals of education (Puspita Siregar et al., 2019). Mathematics education plays a very important role in improving human quality (Herawati & Nurhayati, 2019). Mathematics is one of the subjects that should be able to understand better, but mathematics in general is still considered difficult and frightening by some students (Afriyansyah et al., 2014), (Febrilia, 2019), (Lisnani, 2019). According to (Hamzah & Muhlisrarini, 2014) mathematics

education is a process to improve students' reasoning abilities, increase students' intelligence, and change their positive attitude.

In Law Number 20 of 2003 Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and state.

According to the fourth paragraph of the 1945 Constitution, education is an important aspect in educating the life of the nation and is the obligation and responsibility of the government. This means that all Indonesian citizens have the right to receive proper education and teaching from all walks of life regardless of the financial condition of these Indonesian citizens. The Government is therefore committed to defending the right to education for all citizens in order to improve their quality of life.

One of the Government's efforts through the Regional Government of the City of Bandar Lampung in order to provide cheap educational services to poor citizens is through a policy of accepting students from the Community Development / Affirmation Pathway. An innovation that can provide a solution to overcome the number of dropout rates in the City of Bandar Lampung, which is a renewal of the implementation of Education and is regulated in the Regional Regulation of the City of Bandar Lampung No. 1 of 2012 concerning the Implementation of Education (Dinas Pendidikan Kota Bandar Lampung, 2012) with amendments to Regional Regulation Number 6 of 2019 concerning the Implementation of Education. (Dinas Pendidikan Kota Bandar Lampung, 2019).

Acceptance of New Students (PPDB) at Bandar Lampung City Public Middle School is carried out based on:

- (1) Regulation of the Mayor of Bandar Lampung No. 4 of 2021 concerning Acceptance of New Students (PPDB) in Kindergartens, Elementary Schools, and Junior High Schools in the City of Bandar Lampung; (Peraturan Walikota (PERWALI), 2021)
  - (2) Decree of the Head of the Education and Culture Office Number: 800/1020/IV.40/2021 concerning Technical Guidelines for Implementing the Acceptance of New Students in Kindergartens, Elementary Schools, Junior High Schools for the 2021/2022 Academic Year in Bandar Lampung City. (Dinas Pendidikan Kota Bandar Lampung, 2022).
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The New Student Admission Registration System (PPDB) consists of:

**(1) Zoning Line**

The zoning route is intended for students who live in the closest environment to the intended education unit. This zoning route gets a quota of at least 50% of the school's capacity;

**(2) Affirmation / Community Development Pathway**

This Affirmation / Community Development pathway is intended for students who come from economically disadvantaged families who live inside and outside the zoning area of the school concerned. This Affirmation Track gets a quota of at least 15% of the school's capacity;

**(3) Transfer of Parent/Guardian Tasks**

The transfer path for parents/guardians is intended for students whose parents/guardians are late in transferring assignments/transfers to the area where students currently live. This route gets a maximum quota of 5% of the school's capacity. This route quota can also be used for children of teachers and education personnel or GTK;

**(4) Achievement Path**

The Achievement Track is intended for students who excel in the fields of Science, Art and Sports, as well as achievements in other fields which are tiered in nature. This Achievement Track gets a maximum quota of 30% of the school's capacity. If this route does not meet the quota, then the remaining quota can be added to the zoning route and the Affirmation / Community Development route.

All of the above routes are carried out without an entrance test, the most important thing is that all requirements are met. Entrance without testing certainly affects the quality of the students themselves in dealing with subjects, especially mathematics and also affects the class division because all students are not distinguished by ability Categories that will ultimately lead schools to face dilemmas in the teaching and learning process .

Based on the results of our interviews at SMP Negeri 12 Bandar Lampung in the 2022/2023 Academic Year, this acceptance pattern greatly affects the learning process because what is prioritized is quantity not quality and of course the results of the PPDB process like this should be evaluated every year so that new student admissions processes are found. the right way so that all students who enter junior high school can be accommodated, there is no choice between those who are able and those who cannot afford it, and the quality of education can still increase.

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Learning outcomes manifest themselves as changes in student behavior that can be observed and measured in the form of changes in knowledge, attitudes and skills. Learning outcomes are caused by the existence of learning evaluation activities and learning evaluations are carried out because of learning activities. A learning outcome is a measure of the evaluation of a learning activity or learning process, represented by a symbol, number, letter, or phrase that describes the result each child has achieved over a period of time.

This research is intended to see how big the Differences in mathematics learning outcomes among students in the environmental development/affirmation pathway and other entry pathways (in this study it is called the regular pathway) and the results can be used as a reference in making stakeholder policies (Eryanti et al., 2019).

## **METHODS**

Quantitative descriptions are used in this type of study. Quantitative descriptive research describes, investigates, and explains research subjects as they are and uses numbers to draw conclusions from observable phenomena. Quantitative descriptive research methods are methods that begin with data collection, data interpretation, appearance and results and aim to create an objective description or description of a situation using numbers (Suharmi, 2014).

A population is a generalized domain consisting of objects/subjects exhibiting certain properties or characteristics that researchers use to study and draw inferences from. (Sugiyono, 2013). The research population was class VII students of SMP Negeri 12 Bandar Lampung City. While the research samples were students in class VII.A (Regular class) and VII.C. (Environmental Development class). The data that the researchers obtained from SMP Negeri 12 Bandar Lampung turned out that the Regular route consisted of the Zoning Path, the Transfer of parents / guardians and the Achievement Path of only one and a half classes (Class VII. A and half VII. B) while the Affirmation / Community Development pathway consisted of eight half grade (Half class VII.B and class VII.C to VII.J). The researcher only took samples from two classes, namely Class VII.A (Regular Track Class) and Class VII.C (Environmental Development / Affirmation Pathway Class).

This study is also called a non-experimental study. A non-experimental study is a study in which the independent variables are not manipulated or place random research participants under certain conditions, or perhaps neither.

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The data collected was taken from the study results data for midterm tests and final semester tests to then carry out the normality test and homogeneity test, if the results were normally distributed and homogeneous then it would be a t-test (Independent Sample t-test) (Budiwanto, 2017). And conversely, if the results are not normally distributed and are not homogeneous, a non-parametric statistical test is used, namely the Mann Whitney test with two independent samples. The purpose of this Descriptive research with a quantitative approach is that the researcher wants to describe the real situation of the results of students' mathematics learning achievements on the regular track and Class VII Community Development pathway at SMP Negeri 12 Bandar Lampung in the 2022/2023 Academic Year.

**Table 1. Data on Regular Students and Community Development Class VII at SMP Negeri 12 Bandar Lampung for Academic Year 2022/2023**

Numbers of Class VII Students of SMP Negeri 12 Bandar Lampung City for The 2022/2023 Academic Year										
VII.A	VII.B	VII.C	VII.D	VII.E	VII.F	VII.G	VII.H	VII.I	VII.J	Total
30	29	28	29	29	29	29	29	29	29	290

*Source: Administration of SMP Negeri 22 Bandar Lampung for the 2022/2023 Academic Year*

The sampling technique used in this study is the Simple Random Sampling technique, which is taking sample members from a population at random without regard to the strata in that population. The population in this study was taken from class VII.A (regular track) of 30 students and class VII.C (affirmation/environmental development track) of 28 students, because the sample was less than 100, all samples were taken, so that the total sample obtained was 58 students.

The data used in this study are mathematics learning outcomes data for students in grade VII during the odd quarters of the 2022-2023 school year. obtained through documents from a list of grade VII Mathematics teacher scores at SMP Negeri 12 Bandar Lampung in the form of midterm tests and final semester tests in odd semesters TA 2022/2023 and interviews in this study to obtain information to support research.

The data pre-analysis test used in this study included the normality test and homogeneity test. The normality test is used to determine whether the data taken from the selected research sample represents the population (Sudjana, 2005).

A homogeneity test is a statistical test technique designed to show that two or more sets of data samples were drawn from populations with the same variance. The data homogeneity test is a test of analysis requirements regarding the feasibility of data to be



analyzed using certain statistical tests (Misbahudin, 2013). Homogeneity tests were performed to obtain the assumption that study samples were obtained from the same or homogeneous conditions. A homogeneity test is performed by checking whether two samples have the same variance.

The initial stage of the researcher conducted a normality test using the Lilliefors test (Nuryadi et al., 2017). Then the researcher conducted a homogeneity test (Nuryadi et al., 2017) variance of two sample groups with F test.

Once the population data are found to be non-normal and non-homogeneous, the next step is to perform nonparametric statistical tests (Nugroho, 2008). And it's not normally distributed, it's not uniform. nonparametric statistical tests that will be used if the parametric assumptions are not met is the Mann-Whitney test (Mubarok et al., 2021) or also called the U test. The Mann-Whitney test is used to determine whether there is a difference between two independent samples. The Mann-Whitney test is a nonparametric alternative to the t-test (a parametric test). The  $\alpha$  value used is usually 5% (0.05).

**Definition of Research Hypothesis** In general, the hypothesis is taken from the word hypo which means "below" while the thesis is interpreted as "founder or opinion or certainty". When combined, This hypothesis can be interpreted as temporary answer to a problem. According to (Dantes, 2012), a hypothesis is a presumption that must be verified through data or facts obtained through research.

The hypothesis for the Mann-Whitney test:

$H_0$  : There is no significant difference in mathematics learning outcomes achieved by regular and community development students in Class VII SMP Negeri 12 Bandar Lampung in the 2022/2023 academic year.

$H_1$  : There is a significant difference in mathematics performance achieved by students in regular courses and those in Community Development Class VII SMP Negeri 12 Bandar Lampung Academic Year 2022/2023.

## **RESULT AND DISCUSSION**

This research was conducted at SMP Negeri 12 Bandar Lampung which is located at Jalan Prof. M. Yamin No 39 Rawa Laut Tanjung Karang Timur, Bandar Lampung City. And the samples taken were only two classes, namely class VII.A which represents the Regular pathway class and class VII.C which represents the Community Development pathway class.

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This research is a non-experimental research, so the researchers did not treat the students as samples. This research is a comparative research, which is an attempt to analyze and study two or more aspects of educational entry to find and find similarities and differences that exist in the results of students' mathematics achievement in the regular and Community Development pathways Class VII SMP Negeri 12 Bandar Lampung.

The data obtained for testing in this study is data from the Mathematics Subject teacher for class VII SMP Negeri 22 Bandar Lampung in the form of leger scores; midterm exams, and final semester exams.

Data on learning outcomes that have been obtained and collected are then tested for normality using the Lilliefors test formula with student learning outcomes on the regular track not normally distributed:

The next step is to carry out a homogeneity test by finding the F count of the variance of class VII.A and class VII.C which has a variance that is "non-homogeneous."

Based on the normality and uniformity test results, the results are not normally distributed and not uniform. We then proceed to the Mann-Whitney test type nonparametric statistical test to test the following hypotheses.

$H_0$  : No significant differences in mathematics learning outcomes achievement achieved by regular and Community Development students of class VII SMP Negeri 12 Bandar Lampung Academic Year 2022/2023.

$H_1$  : There are big differences in mathematics learning outcomes achievement achieved by regular and Community Development students of class VII SMP Negeri 12 Bandar Lampung Academic Year 2022/2023.

Before carrying out the Mann Whitney Test the researcher did a ranking first to get the sum of the rankings. Furthermore, after the Mann Whitney test was carried out, the  $Z_{count}$  value was obtained and the final step was to find the  $Z_{table}$  value. Table value in table Z. Two-way test with  $\alpha = 5\%$ , is 1.96.

Meanwhile, if we enter the U2 value, the result is the opposite of the U1 value, which is +0.899. So no need to count again. Then the results taken are positive results so that what is compared later is 0.899. The final step after obtaining the Z-score is to find the Z-table values. Table value in Z table, two-way test with  $\alpha = 5\%$ , which is 1.96. Then the result:

$$0,899 < 1,96 \implies Z_{hitung} < Z_{tabel}$$

Test rule:

$H_0$  : accepted ( $H_1$  rejected) if

$$-Z\alpha \leq Z_{\text{count}} \leq Z\alpha \implies -1.96 \leq 0.899 \leq 1.96$$

$H_0$  : rejected ( $H_1$  accepted) if  $Z_{\text{count}} > Z\alpha$  or  $Z_{\text{hitung}} < -Z\alpha$

$H_0$  : No significant difference in learning outcomes achievement achieved by regular and Community Development students of class VII SMP Negeri 12 Bandar Lampung Academic Year 2022/2023.

The results obtained  $Z_{\text{count}} = 0.899 < Z_{\text{table}} = 1.69$ ; Based on the existing measurements in our tests, we can conclude that there is no big difference between them the following results of Mathematics achievement achieved by students on the regular track and the Community Development pathway Class VII.A and VII.C of SMP Negeri 12 Bandar Lampung in the 2022/2023 Academic Year. This research is based on references that I got from previous research on "Comparison of Student Achievement in Community Development and Non-Environmental Development" (Sari et al., 2014). However, the researchers here did not explain what subjects were studied, then the population taken was 25% of the total class VII students in the 2013/2014 school year and it was not explained which samples were the environmental development class and the non-environmental development class. And in that school year PPDB still uses entrance tests for new students. While the research that I am currently conducting, the rules are without an entrance test for new students, only distinguishing between the affirmation/environmental development entry pathway and the regular entry pathway.

This research certainly has implications for the process of accepting new students and also the process of learning methods for students and teaching staff.

Some of the implications include:

1. There needs to be an improvement in the way of learning by educators to improve the learning achievement of students;
2. The Bandar Lampung City Education Office needs to sit together between Elementary Schools (SD) and Junior High Schools (SMP) which are in the same zoning, in order to find out what makes students' learning outcomes low.

In the process of this research there are limitations, so that future researchers can pay more attention and further refine their research.

Some research limitations, among others:

1. The number of respondents is only 58 people, of course it is still insufficient to describe the actual situation;
  2. This research needs to be intervened afterwards, in order to improve student achievement results.
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## CONCLUSION

1. The results of this study turned out that the Bandar Lampung City Government policy in terms of PPDB with 4 lanes had no effect on the learning achievement of class VII students;
2. Students need to provide treatment in mathematics lessons to students to improve learning achievement;
3. There is no difference in the acquisition of learning achievement because:
  - a. This research takes direct data without any prior treatment process.
  - b. There is a possibility that new elementary school students will not study and have no desire to learn mathematics due to the three-year Covid-19 pandemic, where the learning process was carried out online.
  - c. Students who have just entered SMP Negeri 12 Bandar Lampung do not take an entrance test, so there is no standard in class distribution.
4. The City Government of Bandar Lampung's policy regarding Acceptance of New Students without an entrance test needs to be evaluated in order to obtain policies that are in accordance with existing needs.

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