

THE EFFECT OF USING INDIVIDUALIZED INSTRUCTION ON STUDENTS' MATHEMATICS LEARNING OUTCOMES

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ABSTRACT

One of the factors that influences increasing student learning outcomes is use of appropriate teaching methods. Using appropriate teaching methods can make students interested in participating in learning. Learning with using individualized instruction is one alternative that can be used in learning. By using individualized instruction, learning activities designed in such a way, so that each student gets more attention and can maximize learning outcomes. In this research, based on the data obtained explains that the learning outcomes of students who use individualized instruction are better high compared to the learning outcomes of students who use the lecture method. This data obtained based on the results obtained in each class, the experimental class using individualized instruction got an average score of 73.40, while the class control using the lecture method (classical) got an average score of 64.41. So this research proves that the use of individualized instruction is proven to be more effective in improving student learning outcomes.

Keywords: Individualized Instruction; Student Learning Outcomes

INTRODUCTION

Teachers have a very big role in learning success. Successful or not whether a teaching-learning activity depending on the learning method used by the teacher. On generally, most teachers still have a lot which uses deep classical methods of learning and learning activities. This is what students often do feel bored.

In a learning process, there will be an interaction process is created, namely between teachers with students, students with teachers, and student to student. Therefore, in order learning can proceed smoothly maximum a teacher should be know the characteristics of students. Because every student has the power of thought and power different catch.

To determine the success of learning really depends on the learning objectives to be achieved. Learning objectives are closely related to the material that will be presented and also the teaching methods that will be used in providing the material as well as students' absorption of the material presented. The extent to which the teacher is successful in providing the material and the extent to which students can absorb the material presented. This can all be seen from student learning outcomes taken through learning evaluations.

In general, the education and teaching process currently still runs using classical methods, meaning that a teacher faces a fairly large number of students at the same time and delivers

the same learning material. In fact, the method he uses is the same method for all students in that class.

In classical learning, the teacher assumes that all students in one class have the same ability, readiness and maturity, as well as the same learning speed. This kind of learning activity is usually less effective to carry out. Usually, this classical method is usually a lecture method and is teacher-centered. So it doesn't attract students' attention in learning.

One learning method that can be used to improve this type of thinking is to use individualized instruction. According to the author's assumption, the use of this teaching method is more effective in improving students' mathematics learning achievement. Because, this kind of teaching method can be applied at all levels of school, both at primary and secondary education unit levels.

Teaching using individualized instruction is a teacher's activity to find out the differences in each individual student. This will result in a teaching method that is adapted to the character of the student and also the speed at which students absorb the material provided. Classes that use individualized instruction will pay more attention to students' conditions, where the teacher is more focused on knowing how each student's absorption capacity is in the learning process.

According to Oemar Hamalik (2009, p. 180) an individual is unity each has its own characteristics, and therefore no two individuals are the same. Individual differences can be seen from two aspects, namely horizontal and vertical. Differences from a horizontal perspective, each individual is different from other individuals in mental aspects, such as: level of intelligence, ability, interests, memory, emotions, will, and so on. Differences from a vertical

perspective, no two individuals are the same in physical aspects, such as shape, size, strength and endurance.

Meanwhile, according to Prof. Dr. Mohammad Ali and Prof. Dr. Mohammad Asori (2009, p. 1) "individuals are a unity of physical or physical and psychological or spiritual or soul aspects which cannot be separated".

There are several types of differences according to Oemar Hamalik (2001, p. 181), including:

1. Intelligence (Intelligence)

Basically, the level of intelligence possessed by each student is different. There are students who are slow and there are students who easily absorb the material presented.

2. Talent (Aptitude)

Talent has a big influence on a person's development. To find out your talents, students need an aptitude test so they can estimate their learning outcomes.

3. Physical Condition (Physical Fitness)

Each student has a different physical condition, both in terms of body shape and stamina or body condition

4. Social and Emotional Adjustment

Various alternative social and emotional conditions that can occur among students, such as being quiet, shy, brave, easy or difficult to interact with, like working together, like being alone, being free, and so on.

5. Family Background (Home Background)

Family circumstances influence individual students, because many factors originate from the family which can give rise to individual differences in students, such as culture within the family.

The definition of instruction in the Big Indonesian Dictionary is an order or direction (to do a job) or carry out a task. Instructions can also be described as

lessons or instructions. According to James D. Russell (in Suryosubroto, 1997, p. 87), "Individualized Instruction is a setting that allows each individual student to spend all his time learning something that is useful for him as an individual".

Based on the explanation about individuals and instruction above, it can be concluded that individualized instruction is a strategy for organizing teaching and learning activities that are arranged in such a way, then structured using certain methods that are adapted to students' needs based on their ability to trigger their learning speed with teacher guidance.

This learning, which is tailored to students, includes six elements, namely:

1. Flexible time
2. There is a diagnostic test followed by remedial learning to correct students' mistakes or still provide the opportunity to continue progressing on the material they have mastered.
3. Give students the opportunity to choose lessons or material that suits them.
4. Provide assessments to students on their progress using various forms of assessment that can be chosen and of course with flexible times.
5. Choose a learning location or place that is free to suit the students' wishes.
6. Use varied and enjoyable teaching and learning methods that can be selected and used according to student needs.

According to Ganjar Winata (2017, p. 109), students are everyone who receives the influence of a person or group of people who carry out educational activities. The aim of teachers to get to know their students is so that teachers can help their growth and development effectively, determine the material to be provided, use

harmonious teaching procedures, diagnose learning difficulties experienced by students, and other teacher activities related to individual students.

According to Sodik A. Kuntoro (in Suryosubroto, 2002, p. 93) several efforts that can be carried out by teachers in the classroom include achievement grouping, providing teaching materials, Independent Study, developing individual programs.

1. Grouping Children Based on Achievement (Achievement Grouping)

Grouping of children based on their learning achievement is divided into two, namely homogeneous grouping and heterogeneous grouping.

2. Provide Enrichment Material to Students

In the classroom, it is a good idea for a teacher to provide active enrichment.

3. Provide Opportunities for Children to Learn Freely (Independent Study)

In this case, teachers should provide opportunities for students who want to study independently outside the classroom. For example, giving them study in the laboratory or library, this is an important activity for independent study.

4. Develop Individual Program

In this case, teachers should try to develop package programs for mini programs such as in module schools.

Mathematics is one of the important subjects in basic education. However, students' mathematics learning outcomes are still relatively low. One of the factors that influences mathematics learning outcomes is the learning method used. Individualized Instruction is a learning method that focuses on individual student needs.

The scope of this research is: (1) The object of the research is the use of

individualized instruction in improving student learning outcomes; (2) The research subjects were students in class XI IPS at Senior High School, even semester; (3) The research location was carried out at SMA Negeri 10 Bandar Lampung; (4) Research time for the even semester of the 2021/2022 academic year. The purpose of this research is to find out that there is an influence of the use of individual instruction on improving student mathematics learning outcomes.

METHOD

A. Types of Research

The method used in this research is an experimental method, namely by giving a post-test or pretest. By comparing the two class groups, the experimental class used individualized instruction, while the other classes used classical learning methods with the lecture method.

B. Research Population and Sample

1. Population

All class XI IPS students at SMA Negeri 10 Bandar Lampung.

2. Sample

The classes used were class XI IPS 1 as a control class with a total of 33 students and class XI IPS 4 as an experimental class with a total of 31 students, so the total sample used was 64 students.

3. Sampling Technique

The sampling technique used in this research is the cluster random sampling technique with a draw procedure.

C. Research Instrument

1. Mathematical Ability Test

This test is used to measure students' initial mathematics abilities and students' mathematics learning outcomes after participating in the treatment.

2. Mathematics Learning Motivation Questionnaire

This questionnaire is used to measure students' mathematics learning motivation.

3. Mathematics Learning Styles Questionnaire

This questionnaire is used to measure students' mathematics learning styles.

D. Research Procedure

1. Doing Pre-Test

Measuring students' initial mathematics abilities, students' mathematics learning motivation, and students' mathematics learning styles.

2. Providing Treatment

- Experimental group: Receive mathematics learning using Individualized Instruction.
- Control group: Received mathematics learning using classical methods.

3. Conducting Post-Test

Measuring students' mathematics learning outcomes after participating in the treatment.

4. Analyze Data

Analyze the data using the paired t-test to determine significant differences between students' mathematics learning outcomes in the experimental group and the control group.

E. Data Analysis

Data from pre-test and post-test results were analyzed using the t-hit test to determine whether there was a significant difference between the mathematics learning outcomes of students in the experimental group and the control group.

RESULTS AND DISCUSSION

After carrying out the learning process in the class which was taken as an experimental class in research conducted in 2011, it was class XI IPS 4 with a total of 31 students whose learning process used the individualized instruction method, and a control class totaling 33 students in class 1 using classical learning methods (lectures). The data obtained is in the form of scores from the experimental group and the control group using statistical formulas, so that the average score for each group is obtained.

To obtain valid research results, before testing the hypothesis you must know whether the data distribution is normally distributed and homogeneous or not. This is done to avoid errors in drawing conclusions due to the use of incorrect statistical formulas.

A. Data Normality Test

Based on research that has been conducted, the average score obtained in the experimental class is 73.40, while the average score obtained in the control class is 64.41. This value was obtained based on calculated data by testing the normality of the data in both the experimental class and the control class.

From the results of the calculation of the data normality test in the experimental class and also in the control class, at a significance level of 0.05 or 0.01, it turns out that the hypothesis H_0 is accepted, so this proves that the two samples are normally distributed.

B. Homogeneity of Variance Test

Next, after testing the normality of the data, the researcher carried out a homogeneity of variance test on the two samples. The value F_{hit} is obtained by dividing the largest variance by the smallest variance. Then the next step is to test it by determining the test criteria and taking the real level of 0.05 and 0.01. And after carrying out the homogeneity of variance test, it turns out that for both the 0.05 and 0.01 significance levels, $F_{hit} < F_{daf}$, so that H_0 is accepted, this shows that the samples have the same variance.

C. Hypothesis Test

1. Test of Equality of Two Means

To test the hypothesis proposed in this research, the author used a test of equality of two means with the following pairs of hypotheses:

$H_{01}; \mu_1 = \mu_2$ (there is no effect of using individualized instruction in learning on student learning outcomes).

$H_{01}; \mu_1 \neq \mu_2$ (there is an influence of using individualized instruction in students' mathematics learning).

To test the hypothesis above, the author uses the t-test formula

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2 + s_2^2}{2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad \text{with} \quad s^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

(Sudjana, 2002, p. 239).

From the results of the analysis, the test criteria for both the 5% significance level and the 1% significance level H_0 are rejected. So, in other words it can be concluded that there is an influence of the use of individualized instruction on the mathematics learning outcomes of class XI IPS students in the even semester of SMA Negeri 10 Bandar Lampung for the 2021/2022 academic year.

2. Test of the Difference of Two Means

For pairs of hypotheses in testing the difference between two means are as follows:

$H_0: \mu_1 = \mu_2$ (the average mathematics learning outcomes of students who do not use individualized instruction in learning are lower or the same as the average learning outcomes of students who do not use it).

$H_0: \mu_1 \neq \mu_2$ (the average mathematics learning outcomes of students who do not use individualized instruction in learning are higher than the average learning outcomes of students who do not use it).

Based on the results of the analysis and calculation of *t* that have been carried out, it turns out that the price *t* obtained is greater than the price of the student distribution list, so H_0 is rejected. So it can be concluded that the average mathematics learning outcomes of students who use individualized instruction are higher than the average learning outcomes of students who only use classical methods (lectures).

Discussion

Completeness in learning is a goal that every educator wants to always achieve. The form of learning completeness is in the form of numbers or scores or grades obtained by each student after learning is complete. Testing of this learning takes the form of tests, both written and oral tests. The learning process used by teaching staff influences whether or not students complete the lesson. In this research, the author applies a learning process called individualized instruction.

The learning process using individualized instruction is a learning process used by teachers to further activate students in the learning process.

Based on the results of research conducted using individualized instruction in the learning process and using classical learning, in this case the method used is the lecture method, there are differences in learning outcomes.

This is shown by the higher test results of students using individualized instruction with an average student ability of 73.40. Meanwhile, the average score obtained by students using the lecture method was lower with an average student ability of 64.41.

Hypothesis testing results using $t_{test} = 3.07$ and from the distribution table in the 5% significance level is known to be $t_{tab} = 1.999$. So $t_{test} > t_{tab}$, then the average mathematics learning outcomes of students taught using individualized instruction are higher than the average of students taught using the lecture method. Thus the answer to the problem posed is "there is a difference in the learning outcomes of students who are taught using individualized instruction and students who are taught using the lecture method for class. Thus, the learning process using individualized instruction is higher than students taught using the lecture (classical) method.

CONCLUSION

Based on the results of the research and discussions that have been carried out regarding testing the hypotheses put forward as well as from the experience gained by the author during the research, several conclusions have been obtained. (1) there is an influence of the use of individualized instruction on students' mathematics learning outcomes. (2) the average mathematics learning outcomes of students using individualized instruction are higher than students taught using classical learning (lectures). Thus, the application of individualized

instruction learning can improve
students' mathematics learning
outcomes.

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