

Differences In Mathematics Learning Outcomes Between Lecture Method And cooperative Method Through Media Board Games Snakes And Ladders

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Abstract

Differences in student mathematics learning outcomes between the lecture method and the cooperative method through the board game snakes and ladders (quantitative experimental research). This research aims to determine differences in student mathematics learning outcomes. The technique used in data collection uses cluster sampling techniques. Based on the results of calculations using the t-test formula in the experimental class and control class, it can be concluded in general that there are differences in the mathematics learning outcomes of students who use the lecture method and the cooperative method through the board game snakes and ladders on plane material. Based on the research results, data analysis and discussion, on the results of the research carried out, namely to determine differences in students' mathematics learning outcomes, it can be concluded that the application of the board game snakes and ladders media can improve student learning outcomes. These results can be seen in the learning results where the posttest results for the control class were 70%, while the experimental class which used the snakes and ladders board game method was 80% with a KKM of 70.

Keywords: Mathematics learning outcomes, Lecture Method, Cooperative Method, Media Board games snakes and ladders.

1 INTRODUCTION

Education is a learning process from an educator to students with the aim that children can develop their personalities so that they can develop themselves and take responsibility for the development of the nation's progress and be able to live in society.

(M Huda, 2013:111) The essence of education is the learning process and the learning process cannot be separated from the learning process. Learning is an activity that produces behavioral changes in itself in knowledge, attitudes and skills. (Isjoni & Mohd. Arif, 2013:150) According to humanistic theory, the learning process must start from showing concern for humanization, to achieve optimal acculturation of students themselves.

One of the ways in which learning objectives can be achieved is through student learning outcomes. Student learning outcomes can show how high the ability, absorption and creativity of students are towards learning material from the cognitive domain, therefore teachers should be skilled in carrying out their profession, master the learning material widely, be creative in preparing learning models or media that are suitable for current students. the learning process takes place.

The success of learning objectives is greatly influenced by the competence of professional teachers so that they can produce students who have potential and good personalities in the current era of global competitors (Budiana Irma, 2022:144-161). This relates to one of the subjects which is a universal and fundamental science for the development of science and technology in the current global era, namely Mathematics.

Mathematics is the science of patterns and relationships, because in mathematics, uniformity is often sought, such as orderliness, and the interconnectedness of patterns from a set of certain concepts or models which are their representations, so that generalizations can be made and then proven to be true deductively (Isrokatun, 2020:15)

Based on the results of research observations and interviews conducted from 15 February 2023 to 15 March 2023 in class IV MIS Al Ihsaniyah Kramat Jati with a total of 60 students in class A 30 and class B 30, it is known that there is a lack of student activity in learning Mathematics. It is characterized by fewer students who want to ask questions, and fewer students who want to answer questions. Apart from that, the teacher also does not use media in the learning process, especially on the subject of Bangun Datar. Teachers teach Bangun Datar material only using the lecture method and learning is still teacher-centered, this results in students not understanding the material taught by the teacher. And interest in learning mathematics is still low due to the lack of students' mastery of learning material in mathematics subjects which can be seen from the results of students' daily tests which are still below the Minimum Completeness Criteria (KKM) of 70.

Based on the results of observations and interviews, it can be concluded that the learning process at MIS Al Ihsaniyah requires an evaluation in the learning process that is more interesting for students, namely that the researcher tried to apply two learning methods as a way to improve student learning outcomes in flat shape material.

Flat shapes are one of the materials that will be my research material at MIS Al Ihsaniyah Kramat Jati. The definition of flat shapes is a group of two-dimensional shapes. This group includes: Square, Rectangle, Triangle, Parallelogram, Trapezoid, Kite, Rhombus, and Circle. Each shape has different characteristics or properties. To improve learning outcomes in this material, I will try to apply two learning methods as one way to improve student learning outcomes in flat shapes material.

(Ridwan Wirabumi, 2020) state one alternative learning method that teachers usually use is the lecture method. This is a classic learning method. Where this method is seen as the simplest method. The lecture method is a teaching method that is used to convey information or information or a description of a subject matter or problem orally.

As a comparison, researchers will use cooperative methods through the Board Game Snakes and Ladders media to improve student learning outcomes.

The cooperative learning method is a learning method where students learn and work in small groups collaboratively whose members are 4-6 people with a heterogeneous group structure. The advantage of this learning method is that learning activities become more meaningful and encourage increased student learning motivation. This cooperative method is expected to be able to teach students to have academic skills, social skills, including interpersonal skills (Hasanah, Z., & Himami, A. S., 2021:13).

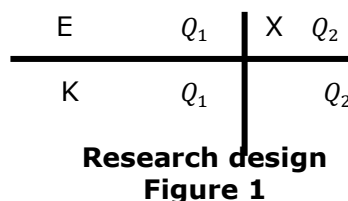
(Luthfiyah, Ririn : 2020) state media board game snakes and ladders is a board game for children played by 2 or more people. The game board is divided into small squares and on various squares a number of snakes or ladders are drawn that connect to other squares.

(Samura, Asri Ode : 2016) State the use of media in the mathematics learning process is expected to be able to improve students' mathematics learning outcomes, especially on the subject of Bangun Datar and make the learning process enjoyable for students. The Media Board Game Snake and Ladder Mathematics is also expected to be able to preserve one of Indonesia's traditional games, namely Snake and Ladder.

2 RESEARCH METHODS

(Ajat Rukajat : 2018) The research that will be carried out is research using quantitative methods using experimental methods with the dependent variable being student mathematics learning outcomes, the independent variable being the lecture method and

the cooperative method through the media boards games snakes and ladders. The experimental research design used was tru-experiment.



Information :

- E = Eksperimental group
- K = Control group
- Q_1 = Pre-test score (before being given the cooperative method via the board game snakes and ladders)
- X = Treatment (cooperative method throught the board game snakes and ladders)
- Q_2 = Post-test score (after being given the cooperative method through the media board games snakes and ladders)

This research was conducted in class IV at MIS Al Ihsaniyah Kramat Jati. The research sample was 60 students from class IV A as the control class and IV B as the experimental class. To obtain differences in student mathematics learning outcomes using the lecture method and the cooperative method through the board game snakes and ladders on plane material using objective tests in the form of multiple choices, the instrument is valid and reliable.

The test instrument for measuring students' mathematics learning outcomes obtained 30 valid and reliable questions. (Nana Sudjana : 2018) The data analysis technique begins with a prerequisite test using the Liliefors test (normality test). After fulfilling the requirements, a hypothesis test is carried out using the t-test.

3 RESULT AND DISCUSSION

The research results obtained in this study are presented based on the variables studied.

3.1 POSTTEST RESULTS OF CONTROL AND EXPERIMENT CLASS

Control Class Posttest from the results of the control class post test, a frequency distribution test was obtained with a range (R) of 25, number of classes (K) 6 and interval length (p) 4.

The calculation results from creating data on the frequency distribution of Post-Test scores for the control class using the lecture method obtained an average value ($\bar{X} = 69.3$), variance $S^2 = 37.96$ and standard deviation $S = 6,16$.

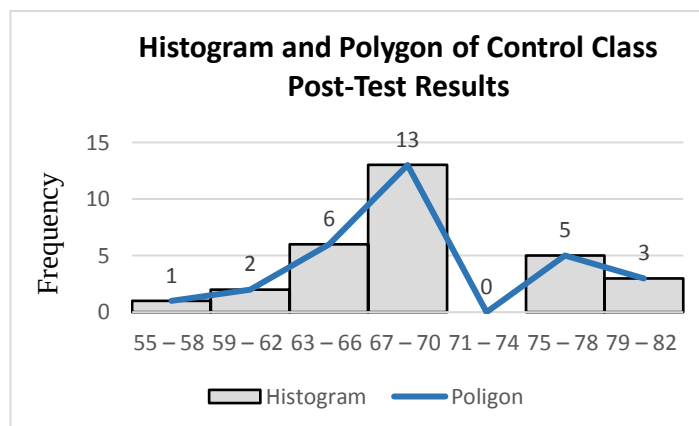


Figure 2
Posttest results

Experimental Class Posttest the results of the experimental class post-test above obtained a frequency distribution test with a range (R) of 20, number of classes (K) 6 and interval length (p) 3. After finding the range, number of classes and class length, a frequency table can be created for the sample class. an experiment using the Board Game Snakes and Ladders media.

Calculations from making data obtained from the frequency distribution of Post-Test scores for the experimental class using the cooperative method through the Board Game Snakes and Ladders media, the average value ($\bar{X} = 79.7$), variance $S^2 = 46.77$ and standard deviation $S = 6,8$.

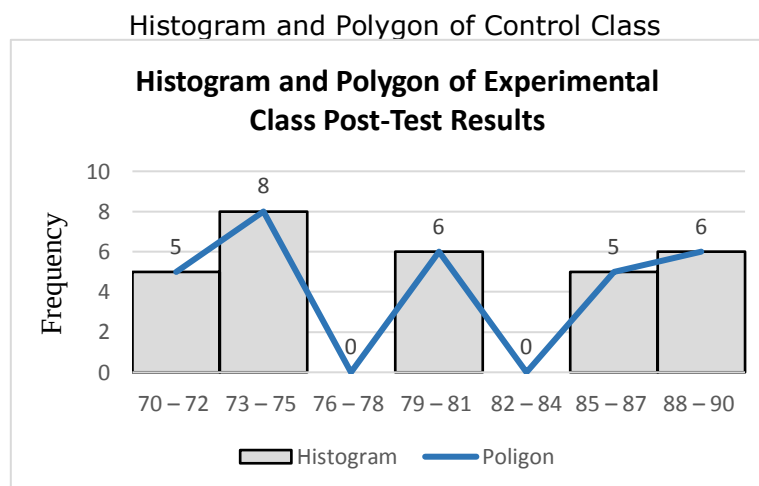


Figure 3
Histogram and Polygon of Experimental Class Post-Test Results

3.2 TESTING DATA ANALYSIS PREREQUISITES

Testing was carried out at a significance level of 95% ($\alpha = 0.05$) for the research sample group. It can be concluded that the posttest results of both experimental and control groups are normally distributed because they meet $L_{\text{count}} < L_{\text{table}}$. The posttest normality results for the control class were $0.149981 < 0.161$ so the data was normally

distributed. Meanwhile, the normality test in the experimental class posttest was $0.157662 < 1.161$ so that the data was also normally distributed.

Homogeneity test analysis uses the Barlett test. With testing criteria if $\chi^2_{count} < \chi^2_{table}$ to a real level $\alpha = 0,05$ and $dk=k-1$ then the data is homogeneously distributed. Results of the homogeneity test $\chi^2_{count} = 1,334 < \chi^2_{table} = 3,841$ So it can be concluded that the posttest results of the control group and experimental group came from a homogeneous population because they met the criteria $\chi^2_{count} < \chi^2_{table}$.

3.3 HYPOTHESIS TESTING

Based on the results of calculations using the t-test formula in the experimental class and control class, it was obtained t_{count} sebesar 6,09474 and t_{table} ($\alpha = 5\%$ and $dk = 30 + 30 - 2 = 58$ of 2,00171 because $t_{count} (6,09474) > t_{table} (2,00171)$, thus then H_1 accepted so it can be concluded in general that there is a difference in student mathematics learning outcomes between the lecture method and the cooperative method through the board game snakes and ladders media in class IV MIS Al Ihsaniyah Kramat Jati flat figures material.

4 CONCLUSION

Based on the results of the data calculations that have been described, the value $t_{count}(6.09474) > t_{tabel}(2.00171)$ is obtained, thus H_1 is accepted. So it can be concluded in general that the average mathematics learning outcomes of students learning flat shapes who learn using cooperative methods through the board game snakes and ladders media are higher than through the lecture method in class IV MIS Al Ihsaniyah Kramatjati.

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