The Effect of Team Assited Individualication Models On Mathematical Learning Results In Mixed Solution Materials Student Of 4th Class SD Moria

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Abstract. This study aims to look at the effect on student learning outcomes in mathematics 4th class SD MoriaSorong City, using the TAI Model. The research that was conducted was experimental and control research. The instruments used were teacher and student observation sheets, written test sheets in the form of multiple choice. Data obtained through descriptive analysis with reference to classical learning completeness. Data shows the average observation score of teachers (researchers) and students by 100% with very good criteria. The results of the analysis of learning completeness at an average pretest value of 40.53%, an average posttest of 85.89%, the reliability test results obtained by Cronbach's Alpha for the instrument test of 0.732 which means it has good reliability. The normality test of pretest learning outcomes of Grade IV students has a significance level of 0.219> 0.05 while the posttest learning outcomes of Class IV students has a significance level of 0.576> 0.05.Homogeneity test has a significance level of 0.468> 0.05. Hypothesis testing obtained tcount of 5.307 with dk = n - 1 = (56-1 = 55) obtained a table of 1.673. based on the results of data analysis values, namely tcount>ttable (5.307> 1.673), with a significance level of 0.05, i.e. (0.000 <0.05), the hypothesis is accepted. Thus it can be concluded that there is an effect of the TAI model on the learning outcomes of mathematics in the mixed fraction material of grade IV students of SD MoriaSorong City.

Keywords: Mixed Fractions, Mathematics Learning Outcomes

1.   Introduction

Education is something that demands continuous improvement and development and must be balanced with changes in modern technology aimed at developing students to be independent in education.

Improvement and development in education is the existence of a model used in learning so as to attract the attention of children who receive learning material. A good teaching model is a model that is adapted to the material presented, both the requirements of students and the conditions of the educator, the infrastructure used, the objectives provided and the time available.

Educator learning uses the TAI (Individual Assisted Individualization) model and conventional models. The TAI model used in learning is grouped and more centered for students, namely students who are given the responsibility to work on the questions given and can exchange ideas about groups, in contrast to conventional models, namely learning that is

done daily by the teacher for students face to face and focus more on the teacher and students for the listener.

Mathematics is taught by the homeroom teacher because learning in SD Moria has used the 2013 curriculum, where mathematics learning is no longer separate and has been combined with other learning called themes. Class IV students numbered 85 students, consisting of class IV / A 29 students, IV / B 27 students, IV / B 29 students. class IV / A consists of 9 students and 20 students and class IV / B consists of 10 students and 19 students.

Based on observations at Sorong Elementary School Moria held on Tuesday, January 20, 2019 it was obtained that student learning outcomes in learning mathematics in class IV are still low, this is evidenced from the results of daily tests of students who have not met the maximum completeness criteria (KKM). The results of tests of fourth grade students who have not yet reached 17 students and who have completed 12 students.

The benefits of research are as material to obtain a picture of the effect of instructional media on cognitive learning outcomes in mathematics and the results of this study can increase knowledge and insights related to problems in this research in the future.

1.1. Literature Review

Learning is the process by which a person undertakes to achieve changes in behavior in yourself in communicating with people around him. Psychologically, learning is a process of changing behavior, in interacting with their environment in meeting their needs (Kholilah, 2018).

Learning is a process that is explained and applied in a person to be able to know the changes. Changes as a result of the learning process can be shown in various forms, such as changes in knowledge, understanding, attitudes and behavior, skills, skills, habits and changes in other aspects that exist in individuals who learn. (Azizah, 2010).

1.2. Learning outcomes

Learning outcomes are the ultimate goal of learning activities in school. Through the learning process a person will experience a change in behavior. These changes can be seen from the improvement and development which is better than before. Learning outcomes include several aspects namely the affective, cognitive and psychomotor aspects.

Based on the description above it can be summarized that the learning outcome is a change in attitude that covers several aspects within the students. Learning outcomes also have specific goals and general objectives.

1.3. Mathematics

Mathematics is a symbolic language, deductive science which does not receive inductive proof, the science of regularity, and organized structure, starting from elements that are not defined, elements defined by keaksoma or postulates, and finally masterminded while the nature of mathematics, which has abstract objective objects, rests on agreement, and deductive mindset (Yhurike, 2012).

Fractions are numbers in mathematics consisting of numerators and denominators. The numerator is located at the top, while the denominator is at the bottom. Fractions in mathematics are rational numbers that can be written in the form a / b (read a per b), in the form where a and b are integers, b is not equal to zero, and number a is not a multiple of number b. Simply stated, a fraction is a number that has a numerator and denominator (Azizah, 2010).

Mixed fractions consist of integers and fractions. If the numerator of a fraction is greater than the denominator, the fraction can be changed to a mixed fraction. To get the mixed fraction form from ordinary fractions, divide the fraction numerator by the denominator.

The TAI learning model is included in cooperative learning. In this model more emphasis on the ability of the individual himself. With the formation of groups, students are expected to be able to develop their own abilities. From the beginning do not know to know and do not understand to understand (Ahmad, 2013).

2. Methodology

A quasi-experimental research model in which the researcher accepts the existence of groups or classes that already exist so that they do not makes it possible to place subjects into groups.

The design in this study is a pretest-posttest non-equivalent group design (pretest-posttest groups that are not equivalent) by using a design pattern.

Table 1. Pretest-posttest non-equivalen gruop design

Kelas	Pre-test	Perlakuan	Post-test
Experiment	O_1	X	O_3
Kontrol	O_2	Y	O_4

Information:
O_1 = Pre-test Experimentclass
O_2 = Pre-test kelasControl class
X = Experimentclass
Y = Control class
O_3 = Post-test experiment class
O_4 = Post-test control class

The variable is the object of research that is the concern of a study. Meanwhile, according to Sugiyono (2011: 2), the research variable is everything in the form of whatever is determined by researchers to be studied so that information about it is then drawn conclusions.

In this study the independent variable is an experimental condition that is manipulated to explain the relationship with the observed phenomenon. The independent variable in this study is the learning model used, namely: Class IV A is a class given teaching material using learning as is commonly done by teachers or Conventional models. Class IV B is a class that will be given teaching material using Team Assisted Individualization (TAI) cooperative learning. Dependent variable (dependent variable) Dependent variable is a condition that changes when an experiment replaces an independent variable (Sugiyono 2011: 4). The dependent variable in this study was the learning outcomes of students' grades in grade IV SD Moria Sorong City.Data collection techniques used in this study were observation and documentation.

The type of test used is a pre-test to determine the initial ability of a research class before being given learning material, while the post-test is used to determine the progress of learning outcomes and the comparison of students to research classes.

The steps of the research in compiling a test of learning outcomes in this study are: Applying the subject that will be used as research material taken from the 2013 curriculum in

mathematics subject class IV elementary school. Design a research instrument lattice. Describes the instrument lattice in the making of theoretical items totaling 20 questions.

Content validation by the test expert is made to make a decision by sending a validation sheet guide to the validator. The results of the validation sheet containing questions about the content, structure, and evaluation are used as input in improving and developing the instrument. In this study, researchers used 1 Expert Judgment (expert test), namely Mathematics lecturers as experts in media and material. Then to find the reliability coefficient of the test instrument, researchers used the K-R.20 formula. Test criteria, if the instrument reliability value> 0.7 then the research instrument is declared reliable. In this study to analyze data using quantitative descriptive analysis. In this study a prerequisite test is a normality test that uses the Kolmogrov-Smirnov test to determine the distribution of data carried out normally or not. Then proceed with testing the homogeneityuse Homogeneity of Variances, to find out whether data distribution is the same or not. This research categorizes subjects that have high and low learning outcomes using the one sample hypothesis test (Independent t test).

3.   Results And Discussion

Researchers test of the validation of the test instrument using Expert Judgment which was used as a research instrument to determine that the test instrument is feasible given to the sample. The sample studied was 4th class consisting of 2 classes, namely the control class totaling 28 students and the experimental class totaling 28 students. After the instrument was declared valid, the next step taken was to look for the reliability of the learning outcomes of grade IV students of SD Moria Sorong City . To test the reliability of the instrument the researchers did it through the results of the test problems on different samples. Based on the calculation of reliability testing of the test instrument using $(K - R\ 20)$, the results obtained reliability value (r_{11}) for the test instrument is 0.732. Based on testing criteria, if the instrument reliability value $(r_{11}) > 0.7$ then the research instrument is reliable.

The test method used by the researchers to determine student mathematics learning outcomes. The test used consisted of twenty multiple choice questions about fractions. Table 1, shows that the number of classes there are 6 with the length of each class interval is 9. The most scores obtained are located at intervals of $38 - 46$ that is equal to 48% (12 students out of 28 students). While the least value obtained is located at intervals $56 - 64$ and $65 - 73$ that is equal to 4% (1 student out of 28 students). The average value obtained for the pretest value is 40.53 (the full calculation can be seen in the appendix).

Table 2. Distribution of Student Pretest Learning Outcomes

Value	Frekuensi ($\sum$)	Persen (%)
20 – 28	2	7
29 – 37	8	28
38 – 46	12	48
47 – 55	4	14
56 – 64	1	4
65 – 73	1	4
Total	**28**	**100%**

In Table 2, shows that there are 6 classes with the length of each class interval is 7. The most values obtained are located at intervals of $74 - 80$ and $95 - 101$ which is equal to 28% (8 students out of 28 students). While the least value obtained is located at intervals of $60 - 66$ and $67 - 73$ that is equal to 4% (1 student out of 28 students). The average value obtained for the pretest value is 85.89.

Table 3. Distribution of Student Posttest Learning Outcomes

Nilai	Frekuensi ($\sum$)	Persen (%)
60 – 66	1	4
67 – 73	1	4
74 – 80	8	28
81 – 87	5	18
88 – 94	5	18
95 -101	8	28
Jumlah	**28**	**100 %**

Before the data analysis is carried out there are stages that must be passed namely data first must be tested whether it meets the requirements of the Independent t-Test statistical test. The analysis used is inferential statistical analysis. To conduct inferential statistical analysis in testing hypotheses, basic testing is needed first including the normality test. Based on Table 3, obtained calculations using SPSS, student pretest learning outcomes Class IV has a significance level of $0.219 > 0.05$, while post-test learning outcomes of Class IV students have a significance level of $0.576 > 0.05$ so it can be concluded that Class IV as a normal-distributed Experiment class. It can be concluded that the data in this study have normal variants and the data are worthy of further testing, namely homogeneity test.

Table 4. Uji Normalitas Kolmogorov-smirnov eksperimen calass

		X	Y
N		28	28
Normal Parameters[a,b]	Mean	40.54	85.89
	Std. Deviation	10.571	8.929
Most Extreme Differences	Absolute	.199	.147
	Positive	.199	.118
	Negative	-.123	-.147
Kolmogorov-Smirnov Z		1.052	.780
Asymp. Sig. (2-tailed)		.219	.576

After the prerequisite test (normality test) is fulfilled, then the next is homogeneity test. Homogeneity test is a test that must be done to see whether the classes studied are homogeneous or not.

Based on the homogeneity test results above, it can be concluded that the significance value of research data is 0.468. As in the homogeneity test, if the significance value> 0.05 then the data distribution is homogeneous. It can be concluded that the data in this study have the same variants and the data are feasible in the next test, namely the homogeneity test.

Table 5. Uji Homogenitas

Levene Statistic	df1	df2	Sig.
.534	1	54	.468

In testing the hypotheses in Table 5, using the Independent t test where the tested data are the results of the posttest based on the calculation results, a t_{count} of 5.307 is obtained with dk $= n - 1 = (56 - 1 = 55)$ a t_{table} value of 1,674. Based on the analysis results data value is $t_{count} > t_{table}$ (5.307 > 1.673) with a significance level of 0.05, i.e. (0,000 < 0.05), the hypothesis is accepted. Thus it can be concluded that there is an influence of the TAI model on the learning outcomes of Mathematics in mixed material in the fourth grade students of SiaMoria Elementary School in 2019/2020 Academic Year.

Table 6. Uji t

	T	df	Sig. (2 tailed)
Posttest	5.307	54	.000

4. Conclusion

Based on the formulation of the problem and the proposed hypothesis, as well as the results of research based on data analysis and hypothesis testing, the conclusion that can be put forward in this study is that there is an influence of the TAI model on mathematics learning outcomes in the mixed material of fourth grade students of Moria Elementary School in SorongCity in 2019/2020 teachings. This is indicated by the value of $t_{count} > t_{table}$ (5.307 > 1.673) H_0 is rejected and H_1 is accepted, so it can be concluded that there are differences in mathematics learning outcomes of fourth grade elementary school students.

5. Suggestion

For Students: students should always actively participate in every learning activity by paying attention to the explanation of the material given by the teacher and actively asking questions if there are things that are not understood. For Teachers: especially mathematics subject teachers should be able to use a variety models and media in organizing more interesting and innovative learning.

For Schools: as input for the school concerned in its efforts to improve the quality of learning to improve student learning outcomes, especially in mathematics. For istimsi especially University of Muhammadiyah Education (UNIMUDA) Sorong and SD MoriaSorong City as an alternative method in the world of education in order to trigger the creativity of educators, especially in the UnimudaSorong environment and to educate educators to deliver material so as to create an educational and imaginative atmosphere. For Further Researchers: To add insight into thinking and knowledge as well as experience in research in the field, the next researcher is expected to be more mature in planning and preparing so that the research can be carried out smoothly, so that it gets results as expected.

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