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CORE LEARNING MODEL (CONNECTING, ORGANIZING, REFLECTING, EXTENDING) WITH STUDENT FACILITATOR AND EXPLAINING STRATEGIES TO IMPROVE UNDERSTANDING OF MATHEMATICAL CONCEPT AND STUDENT LEARNING ACTIVITIES

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ABSTRACT

The diversity of characteristics is something that cannot be separated from students. Concept understanding is a process that has many benefits and dynamic nature. Researchers assess the understanding of mathematical concepts that students master is still relatively low. mastery of other skills is needed that can support the needs of students in understanding the concepts being studied. The CORE learning model is one of the innovative learning models designed to improve students' understanding of mathematical concepts. The method used in this study is a quantitative method with a quasi-experimental design. From the calculation results obtained from the validity and reliability of the data have a valid value and normal distribution. For normality and homogeneity tests, all items are normal and homogeneous. It is known that the results of the t-test hypothesis in the experimental class have an average value (mean) of 63.7 post-test and pre-test of 47.5, the increase in the average result is known to be 16.2 for all test results. From the results above, it can be concluded that the use of the CORE learning model with the *student facilitator and explaining strategy* can improve understanding of mathematical concepts and student learning activities.

Keywords: CORE learning model and Student Facilitator and Explaining Strategy, Understanding Mathematical concepts, student learning activities

1. Introduction

The diversity of characteristics is something that cannot be separated from students. Differences in language, background, experience and the use of access to technology create new experiences that are worth learning as provisions for the future. The many differences then cause variations in the level of understanding of the concepts that students master. In the process of understanding the concept is a process that has many benefits and dynamic nature. The ability to understand systematic concepts is one of the important skills to be mastered in mathematics lessons to build knowledge and exploration in students. Harisantoso & Surur (2020) Delivering problem solving skills is one of the skills that must be mastered to be able to understand a concept in mathematics. From this, it is necessary to master other skills that can support the needs of students in understanding the concepts being studied.

From the results of observations made by giving questions that contain indicators of concept understanding. Researchers found many students who could not answer the questions well, this was seen from the inability of students to solve problems on the questions that had been given. The number of formulas and complicated calculations makes mathematics less attractive to students. The lack of variety of models that the teacher applies makes mathematics a boring subject for most students. In addition, the

researchers also made observations on student learning activities, from there the researchers assessed that many students did not focus on learning mathematics. The number of students who do not pay attention to the teacher is often seen doing other activities in the classroom. The lack of communication between students and students and teachers can be seen from the lack of questions that students ask during learning. From this, the researchers assessed that the understanding of mathematical concepts that students mastered was still relatively low.

This is one of the big challenges for educators in improving the quality of existing learning. Therefore, special models and strategies are needed that can improve students' understanding of mathematical concepts and student activities at the same time. There are many ways that can be done to solve this problem, one of which is the use of the CORE learning model (Anisa *et al* ., 2021) . The CORE learning model is one of the innovative learning models designed to improve students' understanding of mathematical concepts through various basic skills in analyzing more effectively (Agustianti & Amelia 2018) . The CORE learning model itself is a model consisting of four words, namely *connecting, organizing, reflecting* and *extending* (Mata *et al* 2021) . Asma *et al* (2018) also conveyed that the CORE learning model is a model that uses a special approach that can improve student learning activities.

In improving students' understanding of mathematical concepts, they need to be supported by *life skills* (Erita 2017) . One of the many skills that need to be mastered is the *explaining skill.* In his research, Syariful Anam (2020) said that explaining is a skill that includes a number of basic skills needed, including identifying, analyzing and evaluating opinions more effectively. From the above opinion, the researcher uses the *student facilitator and explaining* strategy as a special strategy to help improve students' mathematical understanding skills, especially in mathematics.

Mathematics is one of the compulsory subjects taught at every level of education. Mathematics is taught to equip students with logical and critical skills that can be used to be competent in the future (Masfufah & Afriansyah, 2021). This is in line with the opinion of Rismen et al., (2020) which says the ability to understand mathematical concepts is an important skill in achieving good mathematical results. From that the researcher took the initiative to conduct research using the CORE learning model as a model that can improve student learning processes better.

The researcher refers to Reza and Budi Santoso's research on the use of the CORE model to improve student learning outcomes, but in this study the researchers made variations by combining the CORE model with a special strategy, namely the *student facilitator and explaining strategy* to be used as one of the trials in conducting research. this time. In this study, the researchers aimed to determine the effect of using the CORE model with a combined strategy on understanding mathematical concepts and student learning activities at SMPN 1 Mangaran.

2. Research Methods

Researchers used quantitative research methods with a *quasi-experimental data collection design* and supported by the use of a *non-equivalent control group design.* OnIn the research design used, there will be two classes that are used as comparisons, namely the experimental class and the control class. Previously, the researcher would give *pre-test questions* to both classes before giving treatment to the experimental class. Where is the experimental class with the CORE learning model and the control class with direct learning. The *post test* will be given at the last meeting in both classes with the same level of difficulty as the *pre test.* The design of this research can be seen in the following table:

Table 1. Research design

Class	Pre test	Treatment	Test post
Experiment Class	P1 _	X	O_1
Control Class	P2 _	-	O2 _

Information:

X : Application of Materials with the *CORE* Learning Model
P_1 : Pre-test Experiment Class
P_2 : Pre-test Control Class
O_2 : Experiment Class test post
O2 : :Control class test post

From the table above (table 1), it can be seen that the pretest in both classes was given before the treatment was given. Furthermore, the experimental class will be given special intestinal

treatment using the *CORE learning model with a student facilitator and explaining strategy*. Then both classes will be given posttest questions with the same level of difficulty but with different forms of questions to measure the level of understanding of students' mathematical concepts. The sample in this study was class VIII A and VIII B of SMPN 1 Mangaran with a total population of 64 people.

In this instrument, the researcher uses a test that has been tested for validity and reliability to measure the level of understanding of students' mathematical concepts. Here are the test results;

Table 2. Validity Test

X01	Pearson Correlation	.537 **
	Sig. (2-tailed)	.002
	N	32
X02	Pearson Correlation	.688 **
	Sig. (2-tailed)	.000
	N	32
X03	Pearson Correlation	.470 **
	Sig. (2-tailed)	.007
	N	32
X04	Pearson Correlation	.688 **
	Sig. (2-tailed)	.000
	N	32
TOTAL	Pearson Correlation	1
	Sig. (2-tailed)	
	N	32

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed)

Table 3. Reliability Test

	-Total Correlation	Cronbach's Alpha if Item
X01	.191	.394
X02	.276	.307
X03	.166	.414
X04	.310	.264

In the validity test table, it can be seen that all items in the questions show the $t_{count} > t_{table.}$ then it can be concluded thatall items in the question are valid. All instruments that are declared valid will then be tested for reliability in table 3. The next test is the reliability test using *Crombach's alpha.* In accordance with the tests that have been carried out, it shows that r count > r table, which means that the above instrument is reliable or meets the requirements for hypothesis testing. Prior to hypothesis analysis, normality test and homogeneity test will be conducted.

3. Results and Discussion

After testing the validity and reliability, the researcher then conducted a normality and homogeneity test to see whether the test was normally distributed or not. In this test, the researcher used the normality test with the *Kolomogrov-Smirnov formula* and the homogeneity test with the *leavene test formula* . The homogeneity test used in this study was a test to find out the variance of the two tests carried out. The following are the results of the tests that have been carried out;

Table 4. Normality Test

		SCORE
N		33
Normal Parameters [a,b]	mean	123.6364
	Std. Deviation	344.2911 0
Most Extreme Differences	Absolute	.509
	Positive	.509
	negative	-.404
Test Statistics		.509
asymp. Sig. (2-tailed)		.000 [c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

From the test results above, the value of asymp sig is greater than 0.05, so it can be concluded that the results of the data taken from the test results using the CORE model with the *student facilitator and explaining strategy* towards understanding the concepts of students are normally distributed. The next test is the

homogeneity test with the aim of calculating whether a test can be declared to have the same variance or not. By calculating the significance level where if the significance level is more than equal to 0.05 then the two variables can be said to be homogeneous or have the same variance value. The following are the results of the homogeneity test .

Table 5. Homogeneity Test

	Levene Statistics	Sig.
Based on Mean	.000	1,000
Based on Median	.000	1,000
Based on Median and with adjusted df	.000	1,000
Based on trimmed mean	.000	.996

After a series of tests that have been carried out, the researcher then conducts a hypothesis test to determine the effect given to each class. The hypothesis test used is the *paired sample T test* . T test This test is a test used to determine the effect given to the two research classes. This test will show how big the difference between the two classes is. From the calculations carried out, the following are the results of the T test.

Table 6. T-Test

		Mean	Std. Deviation	Sig. (2-tailed)
Pair 1	KELAS EKSPERIMENT - KELAS KONTROL	16.25000	18.70829	.000

In addition to data from test results, researchers also distributed questionnaires as supporting data that could assist researchers in revealing things they wanted to know. The questions given in the questionnaire consisted of 75% understanding of concepts and 25% about using the CORE learning model. From the questionnaire given, the following is a diagram of the results of the questionnaire;

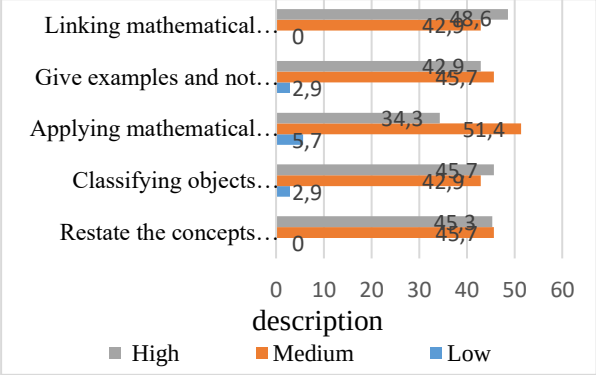

Figure 1. the result of filling out questionnaires

This research was conducted to determine the effect given by using the model used. After giving the test as the main data. The researcher concluded that there was an increase in students' understanding. This thing marked by an increase in the score on the student's test post after learning using the model studied with the *Student Facilitator and Explaining strategy*(Jana & Nugrahayuningtyas, nd) . This thing shows that the use of the given model can improve understanding as well as Skills student in follow learning mathematics (Son et al., 2021) .Researcheralsofound that some of them often asked questions to researchers and their peers who were doing their job as *student facilitators* in class.

In addition, the researchers also provided one of the interaction media, namely the presentation of learning outcomes for each completion of a basic competency in building material. The result is that students are more active and creative in communicating during the learning process. model _ and the media used could help improve liveliness student inside _ learning (Sofiarum et al., 2020) . In addition, with the provision of teaching materials with this learning model, students are also very communicative in learning (Uriel et al., 2020).This proves that students experience enhancement in understanding draft after conducted learning with using the CORE pembelajaran learning model(Minachus Sania et al., 2021) .

In addition to the results from the main data, the researchers also distributed questionnaires as supporting data for the main

data. The results of filling out the questionnaires, from the fifteen questions given, the students admitted that they were helped by the variation of the model using the *CORE Learning Model with the Student Facilitator And Explaining* Strategy. This is evidenced by the high percentage of the questionnaire after the calculation. The use of this learning model helps to improve students' understanding of mathematical concepts (Palupi, 2019) . From the results of the statement, students also claimed to like the whole series in the learning process using the new model that was applied. From the results of the answers to the questionnaire filled out by students, some of them admitted that the learning model used was still using the manual learning model which was quite boring.

In order to see the effect of more models go on, researcher doing a number of test on results test. Before the data was analyzed, the researcher first tested the hypothesis on the test to find out the truth and suitability of the instrument used. From the results of the calculation of the validity of the $R_{count} > R_{table,}$ then all items on the test are valid. To test the normality of the data using the Shapiro Wilk normality test, the test results obtained >0.05 , then the test using the test is normally distributed. Furthermore, for the homogeneity and reliability test, all items are homogeneous, with decision making using Levene's formula, all items are >0.05, then calculations using the Crombach alpha reliability test are obtained, all items are >0.6, so it can be concluded that all items on the test are appropriate or reliable.

After the data is processed, it is known that the results of the T test analysis carried out have a sig value of 0.00. The basis for decision making in this test is if the sig value on the t test results <0.05 then there is a significant effect on the differences given to each class. it is known from the two test results that the average value (*mean*) is quite different, namely the post-test 63.7 and the pre-test 47.5. The increase in average results is known to be 16.2 for test results. The author concludes that there is an increase in students' mathematical understanding abilities.

From the results of the T-test analysis, it is known that the results of the use of the *CORE learning model* with the *Student Facilitator and Explaining strategy* have differences before the model is carried out on students' understanding of mathematical concepts. This difference is assessed from the increase in test results after being given treatment in the experimental class. The results of the increase in the test also play a role as a benchmark whether the learning carried out has an effect or not. In this case, it is proven that the CORE model can improve students' understanding of mathematical concepts (Munawwarah et al., 2020) . In line with Murniati et al., (2020) said that the variation of the model is proven to increase learning activities to improve students' understanding of mathematical concepts.

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