# The Effect of Using the Student Facilitator and Explaining (SFE) Learning Model Assisted by Concrete Media on the Ability to Understand Science Concepts in Class V Students

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| ARTICLEINFO | ABSTRACT |
|---|---|
| *Keyword*<br>Student Facilitator and Explaining (SFE), Concrete Media, Understanding Concepts | The purpose of this study was to examine the effect of using the Student Facilitator and Explaining (SFE) learning model assisted by concrete media on the ability to understand science concepts. The sample used was fifth grade students at SDN Pasuruhan 1, Mertoyudan District, Magelang Regency, totaling 29 students. Samples were taken using saturated sampling technique. This research method uses a pre-experimental method, namely the One Group Pretest-Posttest design. Data collection used an essay type test to measure students' understanding of concepts. This test is used to determine the ability to understand the concept before and after treatment. From the results of the study showed that the average result of the students' pretest was 57.5% and the average result of the students' posttest was 83.6%. The hypothesis test used was the paired sample t test with sig. of 0.000 and smaller than the significance level of 0.05. So it can be concluded that the use of the Student Facilitator and Explaining (SFE) model assisted by concrete media has an effect on students' understanding of science concepts. |

## Introduction

Science subjects are important, because there are several reasons science is taught in elementary schools, including: Science is a subject that provides an opportunity for humans to understand events in the world, is not a mere rote subject, Science subjects have educational values , because science is taught through experiments(Panjaitan, 2017). natural science is not only the mastery of a collection of information in the form of facts, ideas, and principles. Conversely, it is also a process of discovery as it refers to a methodical way of finding out about nature. Teachers have a very important influence in developing students' deep understanding of scientific topics and their ability to apply what they learn in class to real-world situations(Djamaluddin & Wardana, 2019). This means that today's educators need ways to convey knowledge in ways that involve students actively. One of the cooperative learning models is a learning model that emphasizes mastery of concepts or changes in behavior(Saumi, 2020). The capacity to capture ideas is what is meant when a learner has a conceptual understanding. If a student has understood the meaning of an understanding, then the student has achieved a conceptual understanding(Salim Nahdi et al., 2018). From this perspective, a student who understands will be able to re-explain the subjects he has studied based on his own knowledge, so that learning becomes more meaningful. However, in practice, teaching in primary schools is still largely teacher-centred, where learning is teacher-led and moves in only one direction, with little or no direct student participation. What is taught focuses only on memorizing skills without requiring students to use what they have learned in real life. If students don't understand the content, it's because the teacher while teaching hasn't done a good job of encouraging active and creative

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learning by engaging them and providing them with a variety of approaches, techniques, and solutions. This problem also occurs at SDN Pasuruhuan 1. It was found that teachers often turn to media images as a facility to transfer knowledge to students when they are designing models in the learning process of natural sciences or science, which causes the achievement of students' understanding of scientific ideas to be relatively low. . The fact that students only averaged about 75 each day on the test speaks for this. Teachers do not use new or interesting approaches to learning in class, so that children are bored and uninterested in the subjects presented. which results in teachers not always succeeding in encouraging students to understand a concept that is being studied. According to the Big Indonesian Dictionary (KBBI), understanding is a process, method, act of understanding or comprehending. Deep bloom(Djaali, 2008:71), argues that understanding is the ability to understand something. In addition, there are also opinions from(Widiasworo, 2017:81)that understanding is the ability to connect or associate the information learned into a complete "one picture" in our brains. The opinion of the primacy of understanding over knowledge in the cognitive domain was put forward by(Astuti, 2016)that is, understanding is the foundation on which knowledge is built. Therefore, understanding is a way or strategy that aims to make students understand something or information and be able to express it in their own language. While the concept is everything that is owned by a person's thoughts, ideas, or mental images about certain circumstances, objects, or events(Sugiana et al., 2017). Concepts are the foundation for understanding, students will be able to master swide understanding after understanding a concept(Sugiana et al., 2017). The concept, according to Rosser in(Pramesti, 2022)is an abstract object that represents an event or relationship. Thus the concept can be concluded that is a thought that represents an idea or idea. The importance of understanding the concept is expressed by(Eristiani et al., 2020)that mastering the material is not enough by memorizing it needs activities to understand facts, concepts and generalizations in a way that students discover for themselves so that a meaningful learning process occurs.

Based on the above understanding, it can be concluded that conceptual understanding is a person's ability to understand concepts and be able to express them in their own language without changing their true meaning, in line with the understanding of concept understanding according to Rustaman in (Isnaini et al., 2016)that a person is said to understand a concept if he can organize and restate something that has been obtained or studied before. Understanding concepts is very important in the learning process, because understanding concepts will make it easier for students to learn a material(Dewi & Ibrahim, 2019). In line with what was said by(Nasriyanti et al., 2021)if in each study the mastery of concepts is emphasized, then students can have good basic provisions to achieve other basic abilities such as reasoning, communication, connection and problem solving. Understanding the concept is one of the things that must be achieved in the student learning process. This is important so that students can not only work on the questions given, but also be able to interpret or explain the lesson material using their own sentences. If students have the ability to explain or interpret a concept, then these students have understood the concept of a lesson even though the explanation given has a sentence structure that is not the same as the concept given but the meaning is the same(Wijaya, 2016).

Having the right learning model is very important when designing learning processes with students in mind. The Student Facilitator and Explaining (SFE) model is a student-centered model for getting students to teach and be taught by one another. In the Student Facilitator and Explaining (SFE) Model, the teacher explains information briefly, then students get the opportunity to explain it to their classmates, and finally the teacher conveys all the information to students,(Huda, 2013:229). According to(Shoimin, 2017)the Student Facilitator and Explaining (SFE) model is a type of cooperative learning that emphasizes a special structure designed to influence student interaction patterns and has the aim of increasing mastery of the material. The Student Facilitator and Explaining (SFE) model is a learning where students or students learn to present ideas or opinions to other fellow students(Amelia & Syahputra, 2019). The Student Facilitator and Explaining (SFE) model is a learning model that has been proven to improve students' conceptual understanding skills to understand complex or abstract ideas. The Student Facilitator and Explaining (SFE) model encourages students to share their knowledge by facilitating and explaining concepts to their peers. Through the Student Facilitator and Explaining (SFE) learning model, students are encouraged to play a more active role in their education and actively transmit their thoughts to their peers.(Alfiyah, 2021). Something similar to what was said by(Arsyad et al., 2022)In using this model, students act as teachers, using what they know to help their peers learn in ways that are engaging, inspiring, risk-taking, conceptually sound, and ultimately successful. So in the use of the Student Facilitator and Explaining (SFE) model students will be able to contribute valuable experience through the use of learning models and also increase students' conceptual understanding of the subject matter. However, the implementation of the Student Facilitator and Explaining (SFE) learning model is still not perfect, because students are required to learn or develop their own material so that media aids are needed so that students' misconceptions do not occur in learning. The tool used is concrete media, where students independently investigate the topic of study and report back to the teacher to get feedback after sharing their findings. Students' understanding of a subject will increase if they are given the opportunity to explore and verify the material themselves. Based on this description, the researcher has shown an

interest in investigating or choosing a title based on the description given. The Effect of Using the Student Facilitator and Explaining (SFE) Learning Model assisted by concrete media on the Ability of Conceptual Understanding of Class V Students at SDN Pasuruhan 1.

**Research Methodology**

This research method uses a pre-experimental method, namely the One Group Pretest-Posttest design. . Where when the activity is carried out it provides an initial check (pretest) before giving treatment or treatment, a final check (posttest) after giving treatment or treatment(Arikunto, 2018:124). The research design can be seen in table 1 below:

table1Research Design Table

| O1 | X | 02 |
|---|---|---|
| Pretest | treatment | Posttest |

Information :

O1 : Pretest before being given treatment

X : treatment with the Student Facilitator and Explaining (SFE) model with the help of concrete media

O2 : posttest after being given treatment

The pretest was given to research subjects at the beginning of the activity before being given treatment. After the pretest is complete, the researcher will give treatment in the form of applying the Student Facilitator and Explaining (SFE) learning model with the help of concrete media 3 times the treatment. After being given treatment, the research subjects were given a posttest. The data collection method used by the researcher is the pretest and posttest essay questions.

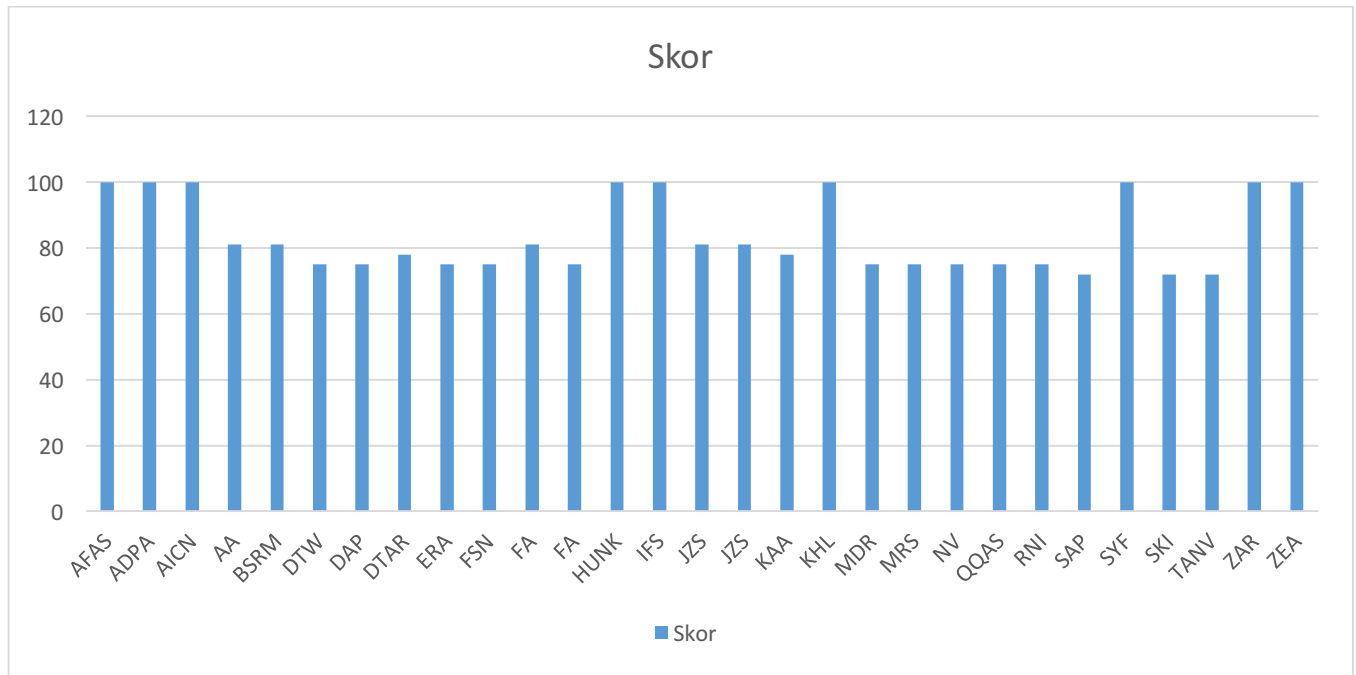**Results and Discussion**

Results

A. Pretest and Posttest results

Data results from research can be proven using initial measurements (pretest) and final measurements (posttest). The following are the results of the initial measurement (pretest) on the research subjects:



**Figures1.**Pretest Results Diagram

From Figure 1 the pretest measurement above, it can be seen that the highest score is 90 and the lowest score is 18. The posttest result data is the final measurement tool in this study. Following are the results of the posttest on research subjects:

**Figures 2.**Posttest Result Chart

From Figure 2 above, it can be seen that there was an increase in scores after being given treatment using the Student Facilitator and Explaining (SFE) model with the help of concrete media, namely the posttest results showed that the lowest highest score was 72 and the highest score was 100.
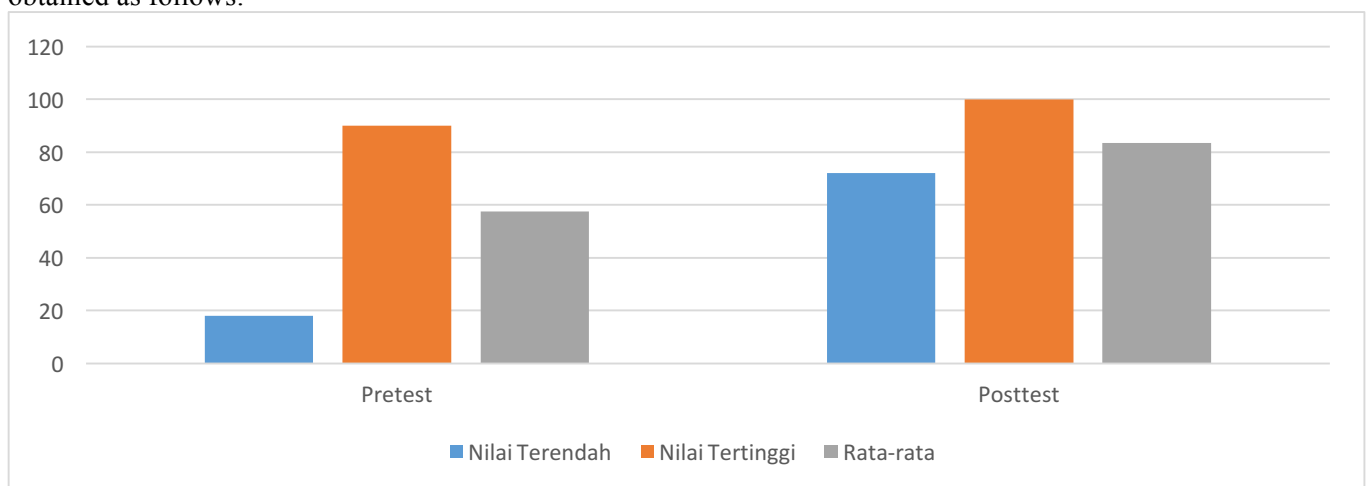
B. Pretest and Posttest Results

The description of the research data discusses all the data that has been obtained. Data results from research can be proven using initial measurements (pretest) and final measurements (posttest). Based on research conducted by researchers that the measurements carried out were to compare the results of the pretest and posttest. The following table 2 shows the comparison of pretest and posttest:

| | The number of students | Lowest Value | The highest score | Average value |
|---|---|---|---|---|
| Pretest | 29 | 18 | 90 | 57.5 |
| posttest | 29 | 72 | 100 | 83.6 |

Table 2. Pretest and Posttest results

Based on table 2 above, details can be obtained. Based on the statement above, details in the diagram can be obtained as follows:

The results of table 2 and figure 1 above show that the pretest results have the lowest score, which is 18 and the highest score, which is 90, while the posttest results have the lowest score, 72 and the highest score, 100. And the pretest average is 57.5% and the posttest average is 83.6%. This is an increase in the average before and after getting treatment. This average comparison shows an increase of 26.1%. These changes show that the treatment before the posttest using the Student Facilitator and Explaining (SFE) learning model with the help of concrete media can increase the understanding of science concepts in Class V SDN Pasuruhan 1.
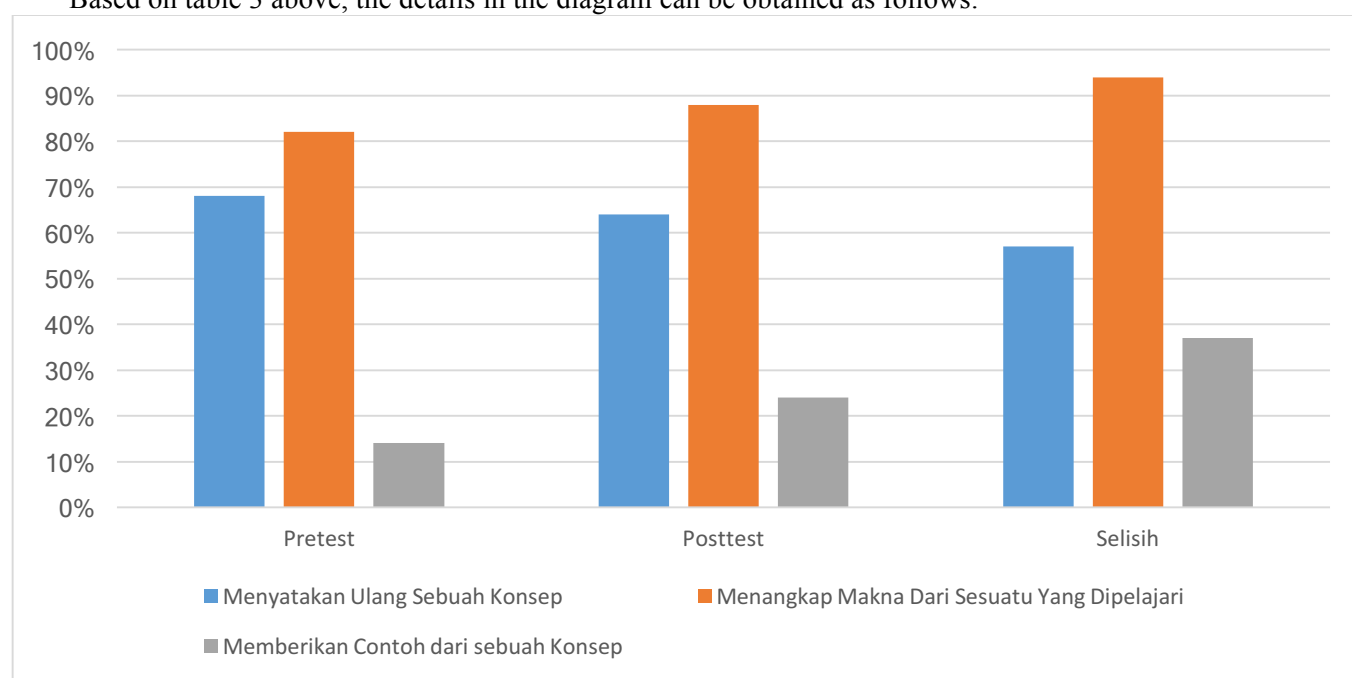
C. Pretest and Posttest Concept Understanding Data Indicators

The indicator data for understanding the concept of pretest and posttest discusses the percentage of the initial measurement data (pretest) and the final measurement (posttest) and the differences that have been obtained. The following are the results of the initial measurement (pretest) and the final measurement (posttest) and the difference:

| No. | Data Indicator Results of Understanding the Concept of Pretest and Posttest | | | | |
|---|---|---|---|---|---|
| | Indicator | Pretest | Posttest | Difference | Information |
| 1. | Restating a concept | 68% | 82% | 14% | Increase |
| 2. | Capturing the meaning of something learned | 64% | 88% | 24% | Increase |
| 3. | Give an example of a concept | 57% | 94% | 37% | Increase |

Table 2 Pretest and Posttest Results Indicator Data

Based on table 3 above, the details in the diagram can be obtained as follows:



**Figures 4.**Data Diagram of Pretest and Posttest Concept Understanding Indicators

Based on table 3 and diagram 2 above, it can be seen that the indicator data for understanding the concept of pretest and posttest above, it can be explained that the first indicator, namely restating a concept, has pretset data of 68% and posttest data of 82% and has a significance of 14%. The second indicator, namely capturing the meaning of something learned, has pretest data of 64% and posttest data of 88% and has a significance of 24%. The third indicator is giving an example of a concept that has pretest data of 57% and posttest data of 94% and has a significance of 37%. From the data above it can be concluded that all data indicators of understanding the concept of pretest and posttest increased.

## D. Normality test

The normality test is a test that is carried out to find out if the pretest and posttest data that has been obtained are normal or not normal. Test the normality of the results of the test on the pretest and posttest data. Following are the results of the normality test with the help of the IBM SPSS Statistics 20 program:

| Group | satisitik | Df | Sig | Results |
|---|---|---|---|---|
| Preset | .936 | 29 | .152 | Normal |
| Posttest | .737 | 29 | .80 | Normal |

Table 3Shapiro Wilk Normality Test Results

Based on table 4 of the normality results above, it can be explained that the normality test with Shapiro Wilk shows the results of the calculation of significance at the pretest of $0.152 > 0.05$ and the posttest of $0.80 > 0.05$. The results of the significance calculation show that the significance of the data is greater than 0.05, so it can be concluded that the results of the normality test are normally distributed.

## E. Hypothesis testing

Testing the hypothesis using the Paired Sample T test. The reason for choosing the Paired Sample T Test is because the normality calculation using the Shapiro Wilk test above produces a normally distributed data population. The Paired Sample T Test was carried out with the help of the SPSS 20 for windows program with a significance level of 0.05 or 5%. Guidelines for making decisions on the Paired Sample T Test based on the significance value (sig.) If the sig. $< 0.05$ then Ho is rejected and Ha is accepted and vice versa if the value is sig. $> 0.05$ then Ho is accepted and Ha is rejected. The results of hypothesis calculations with the Paired Sample T Test can be presented in the following table:

| | | Means | std. Deviation | std. Error Means | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Pair 1 | pre-post | -26.10345 | 16.69120 | 3.09948 | -32.45244 | -19.75446 |

| | | Q | Df | Sig. (2-tailed) |
|---|---|---|---|---|
| Pair 1 | pre-post | -8,422 | 28 | .000 |

Table 4 Paired Sample T Test Results

Based on the table above, it can be seen that the results of the Paired Sample T Test hypothesis show a significance of 0.000 which is less than 0.05, then Ho is rejected and Ha is accepted. So it can be concluded that the Student Facilitator and Explaining (SFE) learning model assisted by concrete media has an effect significantly to the understanding of the science concept of fifth grade students at SDN Pasuruhan 1

Discussion

The pretest results showed an average score of 57.58 because students still did not understand the learning material. Teachers still use conventional learning models too much and do not match the shortcomings of students, namely low student understanding of concepts which results in low student scores. This can be seen from the indicator data of students' understanding of the concept during the pretest, namely restating a concept that has a value of 68%, that is because students still do not understand the concept being taught, resulting in students not being able to explain the material, capturing the meaning of something learned has a value of 64%. that is because with the conventional teacher learning model so that the teacher is less able to encourage students to understand a concept,

Then the posttest was carried out, the results of the student posttest had an increase, namely getting an average value of 83.6. Because students are able to understand the learning material, this is also evidenced by the indicator data of students' understanding of concepts during the posttest, namely, restating a concept has a value of 82%, this is because the Student Facilitator and Explaining (SFE) learning model assisted by concrete media requires

students to actively search for material and develop material so that students' understanding of concepts increases and students are able to explain learning material using their own language,

The results of the pretest and posttest data analysis showed that there was a significant effect after being given treatment by applying the Student Facilitator and Explaining (SFE) learning model assisted by concrete media. With a significant influence on values, the Student Facilitator and Explaining (SFE) learning model assisted by concrete media is said to have an effect on students' understanding of concepts. The results of this significant influence are in line with research conducted by(Widyasari, 2022)which shows that there is a significant effect on the pretest and posttest scores after being given treatment using the Student Facilitator and Explaining (SFE) learning model.

## Conclusion

Based on the research results, it can be concluded that there is a significant influence on students' understanding of science concepts through the Student Facilitator and Explaining (SFE) learning model assisted by concrete media in fifth grade students at SDN Pasuruhan 1, Mertoyudan District, Magelang Regency. This is evidenced by the presence of a pre-test before treatment with an average result of 57.5 and after treatment during the posttest it increased to 83.6, and the results of hypothesis testing using the Paired Sample t Test showed that Sig. 0.000 is smaller than 0.05, then Ho is rejected and Ha is accepted. Therefore the Student Facilitator and Explaining (SFE) learning model assisted by concrete media has a significant effect on the understanding of the science concept for fifth grade students at SDN Pasuruhan 1, Mertoyudan District, Magelang Regency.

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