

**APPLICATION OF THE CORE LEARNING MODEL TO THE CONCEPTS OF CONGRUENCE  
AND SIMILARITY RELATED TO THE SCIENTIFIC ATTITUDES AND LEARNING  
OUTCOMES OF CLASS IX STUDENTS OF SMP PGRI 1 PALOH**

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**Abstract**

The results of data analysis of the application of the CORE learning model were successfully applied to class IXA by conducting a test at the end of the lesson and giving a questionnaire to find out how to use the CORE learning model which was linked to scientific attitudes and learning outcomes on the material of congruence and similarity for class IX students at SMP PGRI 1 Paloh. Obtaining increased learning outcomes at the end of learning using the CORE learning model can be seen in the average of each learning objective item in class IXA which consists of 33 students, namely the first learning objective, namely getting a percentage of 71.25%, and the second learning objective, namely amounting to 46.42%. Obtaining a better scientific attitude at the end of learning using the CORE learning model with an average of 48.61 while the pretest scientific attitude was 41.24. So scientific attitudes when using the CORE learning model for class IXA experienced an average increase of 7.37.

**Keywords:** *CORE Learning Model, Scientific Attitude, Student Learning Results.*

**INTRODUCTION**

Mathematics is a subject that has an important role in everyday life. This is because many problems and activities in life can be solved using mathematics. However, in reality mathematics is still a subject that is less popular with students based on observations from researchers. Not only that, the choice of learning model used by the teacher is also very influential in the implementation of learning. Based on the results of observations of class IX students at SMP PGRI 1 Paloh, Sambas Regency, it was found that the obstacle faced by teachers in the mathematics learning process was students' low initial knowledge, especially regarding the concept of comparison. This is because the method previously taught was only rote, so students' memory only lasted for a relatively short time. As a result, students experience problems in mathematics subjects, especially in the material of congruence and similarity. Therefore, one of the materials that will be studied in mathematics subjects is the material "Congruence and Similarity". Based on the results of data analysis, one of

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which is through a questionnaire regarding the assessment of teachers' learning methods, it shows that students' lack of interest in learning is caused by the conventional learning model used by teachers. The conventional learning model is only monotonous, focuses on theory only, does not involve them in the learning process, and requires them to listen, follow, note down and memorize theory only. Even though students have the desire to participate in the ongoing learning process, such as providing ideas or opinions about the material. Therefore, teachers and researchers make changes to the learning system, both in terms of learning planning and implementation. These changes were made so that the learning objectives to be achieved would be better than before. Based on this description, the CORE learning model is a learning model that can be used to examine scientific attitudes and student learning outcomes, especially in the material of congruence and similarity. Therefore, researchers will conduct research with the aim of applying the CORE learning model to the concepts of congruence and congruence related to scientific attitudes and learning outcomes for students at IX SMP PGRI 1 Paloh.

## RESEARCH METHOD

Data collection techniques are a method used to collect research data and can systematically provide clarity on the data obtained. The data collection techniques used by researchers in this research are direct observation techniques, direct communication techniques, documentary study techniques, and data analysis techniques, so that researchers have the data.

## RESULTS AND DISCUSSION

Results of Applying the CORE Learning Model to Congruence and Similarity Material.

**Schedule and Research Activities in Class**

<b>Class</b>	<b>Date and time</b>	<b>Time Allocation</b>	<b>Activity</b>
The first meeting	Tuesday, April 4 2023	2 JP (13.00-14.20)	<ul style="list-style-type: none"> <li>- Explain the purpose of the research.</li> <li>- Collecting data on scientific attitudes at the beginning of learning.</li> <li>- Carrying out learning using the CORE learning method.</li> </ul>

Second meeting	Saturday, April 8, 2023	3 JP (13.00-15.00)	<ul style="list-style-type: none"> <li>- Collecting scientific attitude data at the end of learning.</li> <li>- Carrying out learning using the CORE learning model.</li> <li>- Providing final learning questions (learning objectives).</li> </ul>
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The following are the steps for implementing the CORE learning model.

No	Activity	Time
1	<b>Introduction</b> <ol style="list-style-type: none"> <li>1) The teacher opened the lesson with greetings and praying together.</li> <li>2) The teacher checks readiness for learning by taking attendance, observing the neatness and cleanliness of the class.</li> <li>3) The teacher conditions students to accept learning (checking neatness and subject books).</li> <li>4) Teachers convey basic competencies and learning objectives and motivate students so that they are interested in the material and learning</li> </ol>	15 minutes
2	<p>Core activities</p> <p><b>Connecting:</b> At this stage students are invited to recall the concept of shapes and types of flat shapes, the characteristics of each flat shape and relate them to the concepts of congruence and similarity and look for differences and relationships between these concepts. The way this can be done is by demonstrating several questions, then students are asked to write and answer the questions.</p> <ol style="list-style-type: none"> <li>1. Does anyone know the shapes of flat shapes?</li> <li>2. Of the flat shapes, what types are known?</li> <li>3. The types of flat shapes above will have their own characteristics, so what characteristics do you know?</li> </ol> <p><b>Organizing:</b> At this stage the teacher guides students to organize the information they obtained at the</p>	60 Minutes

	<p>Connecting stage so that students can understand the concepts of congruence and similarity material clearly. Apart from that, at this stage the teacher divides groups into heterogeneous groups consisting of 5-6 people in order to help students to actively work together in completing congruence and similarity material.</p> <p><b>Reflecting :</b></p> <p>At this stage, the teacher distributes student worksheets (LKS) containing problems related to congruence and similarity material to explore the information that has been obtained and implemented in group learning activities. Students discuss to explore the information they have obtained and implement it in group learning activities. The worksheet contains the steps when working on the example questions given. During discussions, the teacher monitors and provides guidance when needed in the learning process. Each group shows curiosity by asking questions that are not well understood, good cooperation, critical thinking, responsibility and thoroughness.</p> <p><b>Extending :</b></p> <p>At this stage in the discussion activity, students are expected to be able to expand their knowledge by creating their own flat shapes that meet the requirements for congruence and similarity. After all the students had made flat shapes as instructed by the teacher, they were asked to present the results of their discussion by stating the reasons why the flat shapes could be said to be congruent and similar.</p>	
3	<p>Closing</p> <ol style="list-style-type: none"> <li>1) Teachers and students conclude learning material.</li> <li>2) The teacher gives awards (praise or other relevant forms of appreciation)</li> <li>3) The teacher gives assignments to students related to congruence and similarity material.</li> <li>4) The teacher provides final learning questions as well as a scientific attitude questionnaire for learning.</li> <li>5) The teacher ends the lesson with closing</li> </ol>	45 minutes

	greetings.	
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Student Learning Results in the CORE Learning Model for Congruence and Similarity Material.

The learning outcomes in achieving learning objectives that have been obtained by researchers in implementing using the CORE learning model are as follows:

**Differences in Completeness of Learning Outcomes**

No	Year	The number of students	KKM	T thread (%)	Not Completed (%)
1	2022	29	70	41.4 %	58.6%
	2023	33	70	58.86%	41.14%

Student learning outcomes can be seen in the achievement of the learning objectives given at the end of the lesson. A detailed description of the final learning result scores can be seen in the table below this.

**Final Research Class Learning Score**

No	Learning objectives	Question	Question Score	Average Value	N	Weight	Percentage of Achievement of Learning Objectives
1	Students can identify two flat shapes that are similar and congruent.	1	16	16.00 = 100% < 70 ≥ 70	33 with 0 = 0% 33 = 100%	50%	71.25% with < 70 = 31.82% ≥ 70 = 53.03%
		3	40	16.82 = 42.05% < 70 ≥ 70	33 With _ 21 = 63.64% 2 = 6.06%	50%	
2	Students can solve problems in everyday life by using the concepts of similarity and congruence.	2	24	20.55 = 85.63% < 70 ≥ 70	33 with 9 = 27.27% 24 = 72.73%	50%	46.42% with < 70 = 59.09% ≥ 70 = 40.91%
		4	20	7.21 = 36.05% < 70 ≥ 70	33 with 30 = 90.91% 3 = 9.09%	50%	

**Students' Scientific Attitudes in the CORE Learning Model.**

It can be seen that the average for the initial scientific attitude is 41.24 and the final scientific attitude is 48.61. So it can be concluded that the scientific attitude when using the CORE class IXA learning model experienced an average increase of 7.37.

No	Beginning of Learning		End of Learning	
	Criteria	Score/Total	Criteria	Score/Total
1	61 – 80 (Very good)	0%	61 – 80 (Very good)	6.06%
2	41 – 60 (Good)	78.78%	41 – 60 (Good)	75.75%
3	21 – 40 (Enough)	21.21%	21 – 40 (Enough)	18.18
4	0 – 20 (Not enough)	0%	0 – 20 (Not enough)	0%

Based on data analysis regarding the scientific attitude questionnaire of students at the beginning of learning, the scores for each indicator can be found in table 4.8, namely as follows:

No. Items	Indicator	Beginning of Learning.
1	Curious Attitude	60.55%
2		
3		
4	Object's attitude towards data and facts	60.84%
5		
6		
7	Critical Thinking Attitude	80.74%
8		
9		
10	Attitude of Discovery and Creativity	60.91%
11		
12		
13	Open-Minded Attitude and Collaboration	70.84%
14		
15		
16	Introspective Attitude (Meticulous)	99.20%
17		
18		
19		
20		

No. Items	Indicator	End of Learning.
1	Curious attitude	8.04%
2		
3		

4	Object's attitude towards data and facts	8.10%
5		
6		
7	Critical Thinking Attitude	11.06%
8		
9		
10		
11	Attitude of Discovery and Creativity	8.58%
12		
13		
14	Open-Minded Attitude and Collaboration	8.90%
15		
16		
17	Introspective Attitude (Meticulous)	11.01%
18		
19		
20		

Score for Each Aspect of Initial and Final Scientific Attitude

	<b>Want to know</b>	<b>Respect for Data</b>	<b>Critical thinking</b>	<b>Discovery and creativity</b>	<b>Open and Collaborative</b>	<b>Thorough</b>
Beginning	6.55	6.84	8.74	6.91	7.84	9.20
End	8.04	8,10	11.06	8,58	8.90	11.01

It can be concluded that an attitude of curiosity, respect for data, critical thinking, discovery and creativity, has developed in class IXA when using the CORE learning model, especially at the end of learning.

### Research Discussion

Discussion about the application of the CORE learning model.

Learning about similarity and congruence using the CORE learning model in class IXA. This was done to find out whether learning using the CORE learning model can improve students' scientific attitudes so that this occurs at the start of learning.

### Discussion of Student Learning Results

Learning outcomes at the end of learning can be seen in the average of each learning objective item, namely the first objective, namely the average obtained is 100%, the average with the second learning objective gets a score of 85.63%, the average with no objectives got a percentage of 42.05 and the average with the fourth learning objective had a percentage of 36.05%.

### Discussion of students' scientific attitudes

Class IXA in this class experienced changes due to several factors such as

limited time, students' poor understanding of the CORE learning model, less comprehensive assistance, poor group division, different student learning styles, and less optimized use of learning resources. (a) Limited time during learning for research, which is caused by taking instruments at the beginning and end of learning which takes approximately 1 JP. This causes the students' learning process to not take place optimally to develop their scientific attitudes because when learning is almost finished students become in a hurry to complete their activities. (b) Minimum meetings in carrying out learning using the CORE learning model with discussions to develop a scientific attitude, which in this research was only carried out during two meetings in approximately 160 minutes (2x2 JP). Meanwhile, according to Ambarjaya (2012), it is quite difficult for students to change their learning habits by listening and receiving information from teachers (traditional learning) to learning by thinking a lot about solving problems, so that the results cannot be directly observed in a relatively short period of time. (c) the limitations of teachers/researchers in facilitating students during activities where teachers/researchers cannot guide groups of students one by one so this causes some students who experience problems but are less active in asking questions to have difficulty in determining their actions. This can be seen from the results of the students' worksheets, where there were groups who were less precise in making hypotheses and in analyzing. (d) it is not good to divide groups of students which is only done randomly and does not pay attention to the distribution of students based on their cognitive and affective abilities in each group, so this causes groups to not work effectively in working together during activities. (e) there are differences in learning styles between students which can also influence. According to Winkel (2004: 313), there are students who are suitable and interested in learning methods that require students to be more active in problem solving, but on the other hand, there are also students who feel they do not have the courage to take their own initiative and quickly lose enthusiasm for carrying out the learning. (f) the use of guidebooks as a reference for students during activities is not maximized, where students are only guided by the worksheet given by the teacher/researcher. Meanwhile, according to Ambarjaya (2012: 109), learning requires various learning resources. Apart from analyzing scientific attitudes as a whole, researchers also carry out analyzes of each aspect of scientific attitudes to find out the extent of the development of scientific attitudes that occurs at the end of learning.

Based on these results, it can be seen that there are also positive things that happen in learning using the CORE learning model, especially in developing an attitude of respect for data and student cooperation. Apart from that, based on observations during learning, overall it was observed that there were more active learning activities in class IXA . When the class uses the CORE learning model, there is interaction between students in their groups to discuss the material, although the discussion process is not yet well established between female and male students who are in the



same group. Apart from that, there were interactions between students and teachers/researchers during group activities while the teacher/researcher provided assistance to students. Positive things happened in class IXA at the end of learning This is of course in accordance with the objectives of implementing the CORE learning model which emphasizes student involvement in the learning process and improving the quality of learning itself (Perkins et al, 2006: 18).

## CONCLUSION

The results of data analysis of the application of the CORE learning model were successfully applied to class IXA by conducting a test at the end of the lesson and giving a questionnaire to find out how to use the CORE learning model which was linked to scientific attitudes and learning outcomes on the material of congruence and similarity for class IX students at SMP PGRI 1 Paloh. Obtaining increased learning outcomes at the end of learning using the CORE learning model can be seen in the average of each learning objective item in class IXA which consists of 33 students, namely the first learning objective, namely getting a percentage of 71.25%, and the second learning objective, namely amounting to 46.42%. Obtaining a better scientific attitude at the end of learning using the CORE learning model with an average of 48.61 while the pretest scientific attitude was 41.24. So scientific attitudes when using the CORE learning model for class IXA experienced an average increase of 7.37.

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