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Improving Angle Understanding with a Diffrentiated Approach to Overcome Learning Difficulties of Students in 5th GRADE AT Elementary School 1 Karangpandan

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Abstract : *Understanding the concept of angles is one of the basic competencies in mathematics learning in 5th grade elementary school. In the learning process, the teacher has used the Contextual Teaching and Learning (CTL) approach to enhance students' nderstanding, but there are still 5 students who are experiencing learning difficulties. These difficulties are marked by the students' low ability to identify types of angles, measure the size of angles with a protractor, and understand the relationships between angles. This is caused by differences in learning styles, levels of understanding, and a lack of motivation in participating in learning.*

The differentiation approach offers a solution to meet diverse learning needs. With this strategy, teachers can adjust methods, materials, and evaluations according to the abilities and learning styles of the students. Therefore, this classroom action research aims to improve students' understanding of angles through a differentiated approach.

Keywords : *Microsite; angle, Learning difficulty factors, Mathematics, Elementary School students, Differentiation*

INTRODUCTION

Mathematics education in elementary school plays an important role in shaping students' logical, analytical, and systematic thinking abilities.One of the basic competencies taught in 5th grade is the understanding of angle concepts, which includes the ability to identify types of angles, measure the size of angles using a protractor, and understand the relationships between angles. Mastery of these concepts is very important because it serves as the foundation for understanding geometry material at the next level. At SD Negeri 1 Karangpandan, the teacher has implemented the Contextual Teaching and Learning (CTL) approach in mathematics lessons to bridge students' understanding of the concept of angles. Nevertheless,

the results of observations and evaluations indicate that there are still five students who are experiencing learning difficulties. These difficulties are reflected in their low ability to recognize and differentiate types of angles, measure angles accurately, and explain the relationships between angles. This is suspected to be caused by differences in learning styles, levels of understanding, and a lack of motivation in participating in learning.

The differentiation approach has become one of the solutions to address these issues.This approach allows teachers to design learning that meets the needs, interests, and learning profiles of each student.Through differentiation of content, process, and product, it is hoped that students can more easily understand the concept of angles according to their learning styles.Therefore, this classroom action research was conducted to improve students' understanding of the concept of angles through the application of a differentiation approach in the 5th grade at SD Negeri 1 Karangpandan.

METHOD

This research uses Classroom Action Research (CAR), which aims to improve students' understanding of angle material through the application of a differentiated approach.This research focuses on efforts to improve the classroom learning process through an action cycle consisting of planning, implementation, observation, and reflection.This PTK will be conducted in two cycles, where each cycle includes planning, implementation, observation, and reflection on the achieved results.

The subjects in this study are the fifth-grade students of SD Negeri 1 Karangpandan, totaling 30 students. The selection of these subjects is based on initial observations that indicate difficulties in understanding angle material in that class. The research subjects consist of students with varying abilities, who will receive differentiated learning treatment.

The instruments used in this research consist of several data collection tools that support the observation and evaluation process of students' understanding of angle material, including: Observation Sheets and learning outcome tests. This observation sheet is used to monitor student engagement during the learning process. This observation aims to see the extent to which students are active in participating in the learning process and their response to the implementation of a differentiated approach. Learning Outcomes Test: This test is given at the end of each cycle to measure the improvement in students' understanding of angle material.The test includes questions about the definition of angles, types of angles, as well as how to measure and draw angles.Learning Interest Questionnaire/Assessment Sheet: This sheet is used to measure students' interest and motivation towards learning conducted with a differentiated approach. This is important to see whether the approach used can enhance their interest in learning.Field Notes: These notes are used by researchers to record significant events during learning that are not covered in the observation sheets and tests.This note provides additional information that can be used for reflection.

The data obtained will be analyzed as follows: first, Qualitative Analysis: Data from observations, interviews, and field notes are analyzed qualitatively to obtain an overview of the implementation of the differentiation approach in learning. This analysis will focus on student engagement in learning, attitude changes, and their responses to differentiated learning. Second, Quantitative Analysis: Test results will be analyzed quantitatively to see the extent to which students' understanding of angle material improves after the implementation of the differentiation approach. The test results in the first cycle will be compared with the test results in the second cycle to assess any improvement in student learning outcomes.

Data from questionnaires and observations will be analyzed descriptively to illustrate changes in students' interest and motivation in participating in learning. If there is an increase in student participation or enthusiasm, this will be analyzed to assess the success of the differentiation approach.

RESULTS AND DISCUSSION

After the implementation of the differentiation approach in teaching angle material, there was a significant improvement in student understanding.In the first cycle, the average student understanding score was recorded at 83%, indicating progress from the initial condition. However, after improving the learning strategy in cycle II, the average score increased to 93%.This improvement reflects that the differentiation approach is capable of having a positive impact on the enhancement of angle concept understanding among 5th-grade students.

The success of the actions in this research is evident from the progress experienced by students who previously had learning difficulties. Of the five students identified as having difficulties understanding the concept of angles, three students showed significant improvement in understanding after the implementation of the differentiation approach. Meanwhile, one student made progress although still requiring more intensive support. This shows that the differentiation approach is able to help most students overcome their learning difficulties.

The strategy implemented in learning using a differentiated approach has proven effective in enhancing students' understanding. This approach is implemented through a combination of content, process, and product differentiation. Content differentiation is realized in the form of providing visual and concrete materials to make it easier for students to understand. Differentiation of process is carried out by grouping students based on their level of understanding, making group work more effective. Meanwhile, product differentiation is applied through the assignment of individual tasks tailored to each student's abilities. The combination of these three strategies provides a more meaningful learning experience that meets the needs of each student.

The results of this study indicate that the application of a differentiated approach is a practical and effective solution in addressing students' learning difficulties, particularly with abstract material such as angles. Through the adjustment of materials, processes, and tasks according to the needs and characteristics of each student, learning becomes easier to understand and feels more relevant. This approach not only enhances students' understanding but also creates a more equitable and inclusive learning environment.

Therefore, the differentiation approach has great potential to be applied sustainably to other subjects in order to create meaningful and effective learning processes in various contexts.

CONCLUSION

The differentiation approach successfully improved the understanding of angles among 5th-grade students at SD Negeri 1 Karangpandan. By adjusting teaching methods based on the individual needs of students, teachers were able to overcome most of the learning difficulties encountered. This study recommends the implementation of a differentiated approach to other subjects to improve the quality of classroom learning.

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