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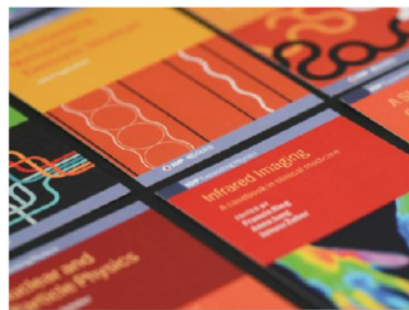
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PAPER • OPEN ACCESS**Teacher's Efforts to Enhance Students' Competence in Madrasah Ibtidaiyah in Science Skills and Academic Achievement**

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Teacher's Efforts to Enhance Students' Competence in Madrasah Ibtidaiyah in Science Skills and Academic Achievement

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Abstract. Teaching using the demonstration model shows that we are ready to take risks by encouraging teachers and students to be, and this adds credibility and a foundation for various things in professional learning sessions. This research aims to improve academic achievement and student skills in science. This research uses an action research method with a cycle system, which consists of planning, implementation, observation, reflection, and revision. This practical action research was conducted on fourth grade MI students in elementary school in South Tangerang. The results show a gradual increase in student learning outcomes. Where pre-cycle shows only 59.25% of students who have completed mastery of learning outcomes, cycle 1 of student mastery learning increases to 74.07%, in cycle 2 student mastery of learning increases rapidly to 92.59%. This paper argues that the application of the demonstration model has been shown to improve student learning outcomes on science subjects. This research also shows that the direct teaching model is proven to be able to transfer science skills to students better.

1. Introduction

The lecture-demonstration method is a teacher-centered teaching strategy used by teachers to teach selected content to certain groups of students [1]. The demonstration learning model has been extensively studied, including the study of [2] shows that the use of demonstration learning models can significantly improve students' understanding of mathematics, and can improve students' cognitive and involvement. Furthermore, the study of [3] showed that the use of demonstration models was able to transfer better knowledge to students, especially in multiplication material as a recurring addition to elementary school mathematics subjects. The results of this study indicate that the use of direct teaching models is proven to improve student mathematics learning outcomes.

The demonstration learning model is included in direct learning and teacher-centered learning approaches to improve student competency in skills and achievement. [4] states that demonstration models are often expensive to buy from vendors or require significant time and skills to build, faculty members generally have a limited amount of time and departments often have limited funds to buy demonstrations that are produced. In this context, [5] describes many approaches that have been taken in teaching students with interest in learning, including direct teaching, explicit learning, and task analysis, where the teacher takes an honest position about what skills they should teach, and moves step by step with students as they teach definite skills, rather than leaving them to their own experiences. Including the inquiry, a model can improve student learning outcomes in Character on



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Budi Pekerti topics [6] and the use of STAD can significantly improve student mathematics learning outcomes [7].

There is evidence that the informal environment can have a strong effect on learning [8]. This is supported by [9] and [10] studies which reveal that the learning environment, inquiry, and learning interest directly influenced student social studies learning assessment. Specifically, in the case of informal science center education, research mainly concentrates on its effect on motivation [11].

According to [12], a demonstration is a presentation of lessons by showing a process or way of working an object. The role of the demonstration model has been widely studied, they believe that teaching demonstration lessons show that we are ready to take risks by encouraging teachers and students to be, and this adds credibility and a foundation for many things. Do and say in professional learning sessions [13]. [4] states that the benefits of demonstration models and visual tools to describe engineering theory are enormous and are well documented. The disadvantages of these models in class are that they are expensive to buy, time-consuming to build, or require special skills to build. This means that improving mathematics learning outcomes through a demonstration model can improve other aspects of the subject. What is meant by this demonstration learning model is that this model is designed to improve the mastery of various skills (procedural knowledge) and factual knowledge that can be taught step by step. This model is better in a relatively short time to teach.

This study aims to explore demonstration learning models in improving the learning outcomes of fourth-grade elementary school students in South Tangerang on science subjects.

2. Method

This practical action research was conducted in fourth grade Madrasah IbtidaiyahSetu students, one of the schools in South Tangerang. Twenty-one students were made as study participants. This research was conducted on science subjects, sound and light energy units. This practical action research uses the Kemmis& McTaggart model, which consists of four phases, namely planning, action, observation, and reflection.

2.1. Data analysis

Data were analyzed using text analysis (qualitative) and descriptive statistics (quantitative). Science learning outcomes are obtained from student tests and mean data analysis is performed. Observations were obtained from the teaching actions of the teacher from the demonstration learning model adopted.

2.2. Observation

This observation is a direct observation made of the teacher's teaching actions and student learning processes. Observations are captured in the form of detailed observation sheets showing aspects of the observed process. The observation sheet is completed with observational notes containing activities carried out by the teacher and students in the implementation of science learning.

2.3. Test

Tests are given in pre-cycles and cycles, tests are used to measure students' abilities before and after the demonstration teaching model is adopted by the teacher. The test is done in writing and performance.

3. Results

3.1. Student Learning Outcomes

Student test result data shows that the learning process of science using the demonstration model has increased from cycle to cycle. This can be seen from students' better understanding of the lessons delivered by the teacher. Where in the pre-cycle, the average value of class = 65, in cycle 1 = 78.33, and cycle 2 = 77.96. While the percentage of students' mastery learning in the pre-cycle was 59.25%, in cycle 1 it became 74.07%, and in cycle 2 it increased significantly to 92.59%. Data on average grade and percentage of students completeness learning are shown in Table 1.

Table 1. Data on the average value and percentage of student mastery learning in pre-cycle, cycle 1 and cycle 2.

Research cycle	Average grade of students	Percentage of student learning completeness
Pre-cycle	65	59,25%
Cycle 1	78,33	74,07%
Cycle 2	77,96	92,59%

3.2. *The teacher's activities in learning science using the demonstration model*

The observational data on the teaching actions of the teacher in cycle 1 showed 92% of the five phases of the demonstration teaching model activities had been carried out by the teacher, and in cycle 2 it increased to 100%. Percentage data of students' mathematical learning completeness and percentage data of teaching actions of teachers in pre-cycle, cycle 1, and cycle 2 are presented in Figure 1.

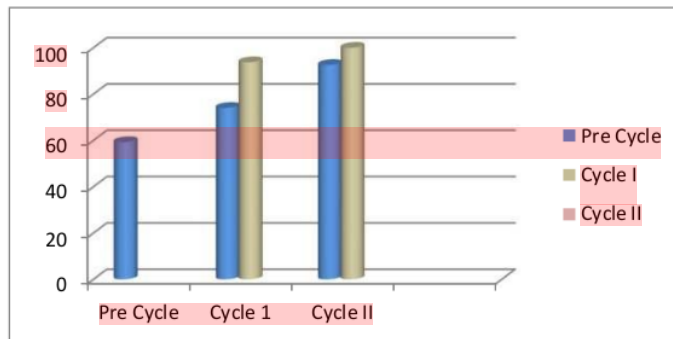


Figure 1. Data on student mathematics learning outcomes and observational data on teaching actions of teachers in pre-cycle, cycle 1, and cycle 2

4. Conclusion

This paper argues that the application of the demonstration model has been shown to improve student learning outcomes on science subjects. This research also shows that the direct teaching model is proven to be able to transfer science skills to students better.

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