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THE ROLE OF TEACHER GUIDANCE IN IMPROVING STUDENT LEARNING OUTCOMES IN MATHEMATICS THROUGH PICTURE MEDIA IN GRADE V OF ELEMENTARY SCHOOL 3, MOROTAI ISLAND

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Abstract

This study aims to determine the learning outcomes of mathematics on cylindrical solids through image media in fifth grade students of Elementary School III of Morotai Island. This type of research is Classroom Action Research (CAR) with 22 students as research subjects. This Action Research was conducted in two cycles consisting of planning, implementation, observation and reflection stages. Data collection techniques through observation and tests and data were analyzed in quantitative form. The results of this study indicate that learning mathematics using image media can improve student and teacher learning outcomes in the teaching and learning process. Student learning outcomes from Cycle I score 41% (9 students) who completed, not completed 59% (13 students) increased and in Cycle II there was an increase in score 86% (19 students) who completed and not completed 14% (3 students) classically learning outcomes have reached the KKM standard of 65.
Keywords: *learning, mathematics, media and images*

Abstrak

Penelitian ini bertujuan untuk mengetahui hasil belajar matematika bangun ruang tabung melalui media gambar pada siswa kelas V Sekolah Dasar Unggulan III pulau Morotai. Jenis Penelitian ini adalah Penelitian Tindakan Kelas (PTK) dengan subyek penelitian 22 siswa. Penelitian Tindakan ini dilakukan dengan dua siklus terdiri dari tahapan perencanaan, pelaksanaan, observasi dan refleksi. Teknik Pengumpulan data melalui observasi dan test serta data dianalisa dalam bentuk kuantitaif. Hasil penelitian ini menunjukan bahwa pembelajaran matematika menggunakan media gambar, dapat meningkatkan hasil belajar siswa dan guru dalam proses belajar mengajar. Hasil belajar siswa dari Siklus I skor 41% (9 Siswa) yang tuntas, belum tuntas 59% (13 siswa) meningkat dan pada siklus II terjadi peningkatan skor 86% (19 siswa) yang tuntas dan yang belum tuntas 14% (3 siswa) secara klasikal hasil belajar telah mencapai standar KKM 65.
Kata Kunci : belajar, matematika, media dan gambar

I. INTRODUCTION

Education is a necessary process to enhance and enhance the development of an individual or a group of people. Learning activities are not solely focused on imparting knowledge and skills by teachers to students. Learning also represents a transformation from

ignorance to knowledge, from ignorance to understanding, acquired through the learning process within an individual (Ni Ketut, 2022:56).

Teachers play a crucial role in the learning process. They are also responsible for educating and guiding students to achieve maturity, securing a positive future, becoming successful and responsible individuals, both for themselves and others.

Learning media are all learning processes, both physical and technical, that facilitate the delivery of material to students, enabling them to achieve predetermined learning objectives (Adam et al., 2015:105).

The school environment, family environment, and community environment are essential elements of the learning system. As a media element, it should be an integral part and aligned with the overall learning process. Media in learning has a significant relationship with learning outcomes.

Learning outcomes are obtained through working on problems given by teachers, so each student's learning outcomes will differ. This is because each child's understanding and knowledge vary. Factors influencing learning outcomes can be described as follows: Internal factors include skills, learning methods, motivation, and interests. External factors include

Mathematics is a subject taught at every level of education in Indonesia, from elementary school to university. The classroom teaching process encompasses various elements that play a role in determining school policy, including the role of instructors or teaching staff. To achieve educational goals, teachers need to carefully determine appropriate learning methods and media, based on an analysis of available information.

Initial observations at SDN Unggulan III, Morotai Island, specifically in grade 5, showed that learning outcomes in mathematics, especially in the topic of geometric shapes, were very low. Furthermore, it was observed that students were less active in learning and paid less attention when the teacher explained the material. Consequently, some students still struggled to understand the mathematics when working on practice problems. On the other hand, teachers tend to employ abstract and theoretical learning methods, which results in students experiencing difficulty understanding the material.

Therefore, Lende (2023:26) emphasizes that teachers need to possess basic skills and abilities before providing independent learning spaces. Teacher qualifications are significantly related to student qualifications. In implementing the learning process, the use of learning media, such as visual media, is crucial. When teachers teach without utilizing

visual media, students' understanding of the material tends to be suboptimal. Based on the above description, the researcher is interested in conducting a study entitled "The Role of Teacher Guidance in Improving Student Learning Outcomes in Mathematics Through Visual Media in Grade V of SDN Unggulan III, Morotai Island."

II. THEORETICAL STUDIES

A. The Role of Teachers

According to Barbara (in Kurniawan, 2018:8), a role is a set of actions expected of someone by others according to their position within a system. Syaiful Bahri Djamarah and Aswan Zain (in Kompri, 2019:29) state that "teachers are educators who impart knowledge to students at school. Teachers are also experienced in their professional fields. With their knowledge, they can transform students into intelligent individuals."

From the above definition, it can be concluded that the teacher's role as a mentor is to direct and guide students to achieve educational goals, help students overcome obstacles and difficulties in learning, and adapt to their environment.

B. Learning Outcomes

Definition of Learning Outcomes

According to Asep Jihad and Abdul Haris (2022:14), learning outcomes are the abilities acquired by children after learning activities. Purwanto (2019:54) states that learning outcomes are changes in behavior that occur after participating in the teaching and learning process in accordance with educational goals. Mathematics is the science of patterns, encompassing activities that make sense and require the ability to communicate ideas to others.

From the definition above, it can be concluded that learning is a process of self-change or behavior in developing one's knowledge, thereby enabling a deeper understanding.

C. Image Media

1. Definition of Image Media

Image media is an image related to learning material that serves to convey messages from teachers to students. This image media can help students express the information contained in a problem, allowing the relationships between components in the problem to be more clearly seen. Image media is an imitation of objects and scenes in terms of their shape, appearance, and size relative to their environment, so that they can be understood and enjoyed everywhere.

D. Cylinder Material

1. Definition of a Solid Geometry

Quoting from the book "Learning Solid Geometry," Siti Ruqoyyah et al. (2020: 14) defines a solid geometry as a portion of space bounded by a set of points on the entire surface of the geometry. A solid geometry is formed in three dimensions and has volume.

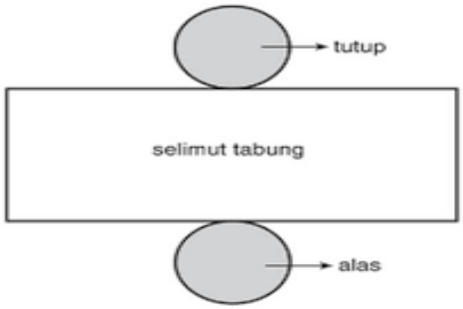
A solid geometry can be defined as a three-dimensional geometric object that has length, width, and height. In this case, length, width, and height are not only two-dimensional measurements but also a third dimension, namely depth or space.

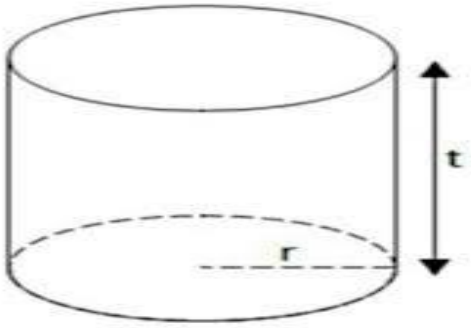
2. Cylinder Geometry

A cylinder is a solid geometry bounded by two congruent, parallel, opposing circles, and each point of the two circles is connected by a straight line. Characteristics of a cylinder:

1) It has two identical, parallel circles
2) It has a rectangle surrounding both circles
3) It has no corners
4) It has curved sides
5) It has a radius and diameter
6) It has a height

3. Nets of Cylinder Geometry





Description:

t = height

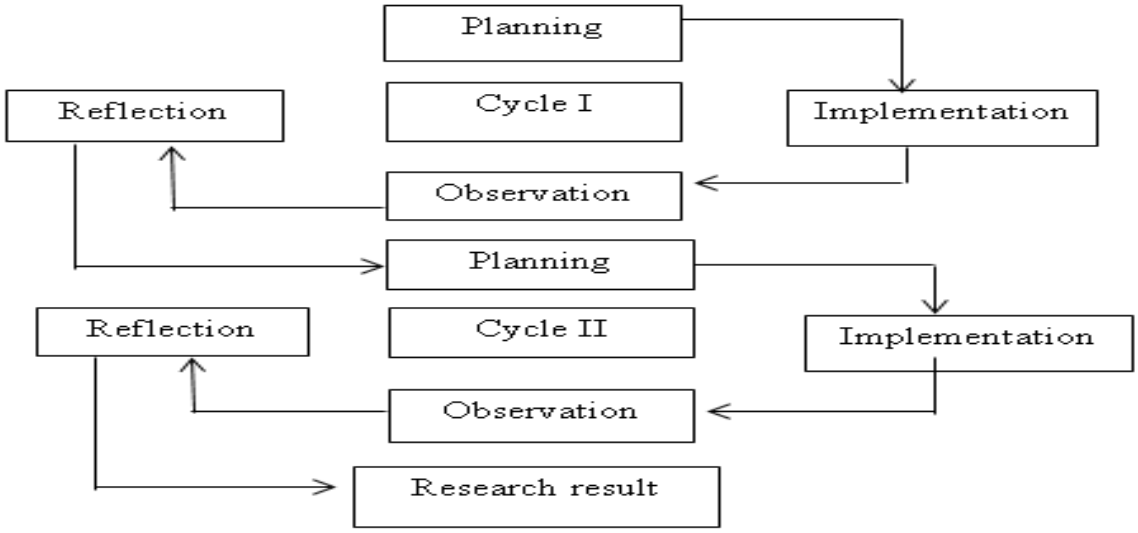
r = radius of base

d = diameter

III. RESEARCH METHODS

A. Type of Research

The type of research used in this study is classroom action research (CAR). According to (Zainal Aqib, 2020:3), Classroom Action Research (CAR) is research conducted by teachers in their own classrooms through self-reflection with the aim of improving their performance and thereby increasing student learning outcomes.



The flow of the classroom action research cycle is as follows:

Cycle:

1. Planning
   a. The researcher and subject teachers hold an initial meeting to discuss learning objectives.
   b. Develop a Lesson Implementation Plan (RPP) for the action.
   c. Prepare Student Worksheets for the action.
   d. Prepare test questions for the action.
   e. Prepare teacher and student observation sheets.
2. Implementation
   a. Carry out the lesson according to the plan.
   b. Administer a test to determine the extent to which students understand the Mathematics learning concepts on cylinders.

3. Observation

During the implementation of the action, notes are taken using an observation form. The points recorded during the observation process include indicators of student learning outcomes.

4. Reflection

Reflection is conducted to analyze the action and provide information for improvement in subsequent actions.

B. Research Location and Time

This research was conducted at SDN Unggulan III, Morotai Island, specifically in grade V. The research period was from April to May 2025.

C. Research Subjects

In this study, the subjects will be 23 fifth-grade students of SDN Unggulan III Pulau Morotai, consisting of 12 boys and 11 girls.

D. Data Collection Techniques

a. Tests

Heryadi (2014: 90) states, "Test techniques are data collection techniques conducted through tests, examinations, or measurements on an object (human or object). In this study, the author used tests to measure students' abilities in learning mathematics through images.

b. Observation

Observation as a data collection technique has specific characteristics compared to other techniques. Observation is not limited to people, but also includes other natural objects. Sugiyono (2015: 204) defines observation as the activity of recording research on an object.

c. Documentation

According to Sugiyono (2015: 329), documents as a data source are a method used to obtain data and information in the form of books, archives, documents, written figures, and images in the form of reports and explanations that can support research.

E. Data Analysis Techniques

The data analysis technique used is descriptive statistical analysis. The data obtained is scored and tabulated in tables, then the frequency is calculated, thus serving as a reference for conducting descriptive analysis.

The Minimum Competency (KKM) in Mathematics is 65 So the classical completeness is 65% with the following formula:

1. Percentage of individual completion $= \frac{Total\ Score}{Maximum\ Score} x\ 100\%$
2. Percentage of classical completion $= \frac{Students\ who\ have\ completed}{Number\ of\ Students} x\ 100\ \%$

(Ngalim Purwanto 2013 dalam Afdholiyah et al., 2021)

IV. RESEARCH RESULTS

A. Research Results

This chapter presents the results of a mathematics lesson using images for the topic of cylindrical solids. This research was conducted on fifth-grade students at Unggulan III Elementary School on Morotai Island, with 22 students as subjects.

1. Cycle I

The learning process in Cycle I took place on May 15, 2025. Each cycle consisted of four stages: planning, implementation, observation, and reflection. These stages form a series of cycles, each of which can be explained as follows:

a. Planning

To carry out the learning process, the researcher must first develop a plan for the research, which includes:

1) Developing a mathematics lesson plan (RPP) for the topic of cylindrical solids.
2) Preparing teaching materials. The researcher prepared the material on cylindrical solids.
3) Preparing teacher and student observation sheets during the lesson.
4) Preparing test sheets to be given to students at the end of the lesson.

b. Implementation

To achieve the expected learning outcomes, the researcher and class teacher set learning objectives for students to achieve in Cycle I, namely, students being able to identify nets for cylindrical geometric shapes. From these objectives, it is expected that students will understand them.

1) Initial Activities (10 minutes)

In the initial activities, the teacher manages the class effectively and provides motivation and appreciation to students to ensure they are enthusiastic about participating in the learning process.

2) Main Activities (50 minutes)

In this activity, the teacher explains the definition and types of cylindrical geometric shapes to students. Students are asked to observe the material presented by the teacher in front of them. The teacher then asks students to find examples of concrete objects shaped like cylinders around them. The teacher explains the material by posting a picture of a cylinder on the board while explaining the material. The teacher then gives students the opportunity to ask questions about any unclear explanations. Next, several students are asked to come to the front of the class to use the picture to pull the string on the picture to form a cylinder.

3) Closing Activities (10 minutes)

In this activity, the teacher concludes the lesson and closes with a greeting.

c. Observations

1. Observations of teacher activities

Table 4.1 Teacher activities in Cycle I

Acquisition Score	Maximum score	Percentage
20	40%	50%

Observer observations of teacher activity were categorized as less than optimal, as the teacher activity level in cycle I was 20%, with a percentage of 50%. This result was attributed to the preparation of teaching materials, the teacher's lack of adequate classroom management, and the classroom's preparation for the teaching and learning process.

2. Observations of Student Activity

Table 4.2 shows results of student observations in cycle I.

Acquisition Score	**Maximum Score**	**Persentage**
5	10	50%

Based on the results in Table 4.2 above, the student's score was only 5 out of a maximum of 10, representing 50%. Therefore, it can be concluded that the student's observations have not yet reached the maximum score. Therefore, teachers must provide greater encouragement in the teaching and learning process.

3. Observation of Student Learning Outcomes

Based on the test results in Cycle 1, the completion rate was still below average. Nine students were found to have achieved moderate completion (>65), while 13 students, out of a total of 22 students, had not yet achieved completion.

Table 4.3 Student Learning Outcomes in Cycle 1

Mark	Number of Students	Percentage %	Information
≥65	9	41%	Completed
<65	13	59%	Not Completed
Amount	22	100%	

d. Reflection

Based on the observations above, fifth-grade students at SD Negeri Unggulan 3, Morotai Island, experienced difficulties in the learning process using picture media. The researcher needs to conduct further research in the next cycle, or Cycle II, to improve the teaching and learning process in the classroom.

Cycle II

The learning process in Cycle II was implemented on May 19, 2025. Each cycle consists of four stages: planning, implementation, observation, and reflection. These stages form a series of cycles, each of which can be explained as follows:

a. Planning

1) Developing a mathematics lesson plan (RPP) for the topic of cylindrical solids.
2) Preparing teaching materials. The researcher prepared the material on cylindrical solids.
3) Preparing teacher and student observation sheets during the lesson.
4) Preparing test sheets to be given to students at the end of the lesson.

b. Implementation

To achieve the expected learning outcomes, the researcher and class teacher set learning objectives for students to achieve in Cycle I, namely, students being able to identify nets for cylindrical geometric shapes. From these objectives, it is expected that students will understand them.

a) Initial Activities (10 minutes)

In the initial learning activities, the teacher manages the class effectively and provides motivation and appreciation to students to ensure they are enthusiastic about participating in the learning process.

b) Main Activities (50 minutes)

In this activity, the teacher explains the concept and types of cylindrical geometric shapes to students. Students are asked to observe the material presented by the teacher in front of them. The teacher then asks students to identify concrete examples of cylindrical

objects around them. The teacher explains the material by posting a picture of a cylinder on the board while explaining the material. The teacher then gives students the opportunity to ask questions about any unclear points. Next, several students are asked to come to the front of the class to use the picture to pull a string through the picture to form a cylinder.

c) Closing Activities (10 minutes)

In this activity, the teacher concludes the lesson and closes with a greeting.

c. Observation.

1. Observation of teacher activities

4.3 Teacher activities in cycle II

Acquisition Score	Total Score	Total owned by the teacher
36	40	90%

Observer observations of teacher activity were categorized as good, with a 90% teacher activity level in Cycle II. This result was attributed to the preparation of teaching materials, teacher readiness to master the material, and classroom preparation for the teaching and learning process.

2. Observation of Student Activity

Table 4.4: Results of Student Observations in Cycle II

Acquisition Score	Maximum Score	Percentage %
9	10	90%

From the results in Table 4.4, the score obtained was 9 out of a maximum of 10, representing 90%. Observations indicate that students have achieved the maximum score, indicating that classroom learning has achieved the maximum score.

3. Observations on Student Learning Outcomes

Based on the test results in Cycle 1, the completion rate was still below average. Nine students were found to have achieved moderate completion (>65), while 13 students, out of a total of 22, had not achieved completion. This is evident in the learning outcomes of fifth-grade students at SD Negeri Unggulan 3 Pulau Morotai in mathematics learning on geometric shapes.

Table 4.4: Student Learning Outcomes in Cycle II

Mark	Number of Students	Percentage	Information
<65	3	14%	Not Completed
≥65	19	86%	Completed
Amount	**22**	**100%**	

d. Reflection

Judging from the student activity in the Cycle 1 table, out of 22 students, 3 students (86%) received a score below (<65) or had not yet achieved the learning completion rate, while 19 students (14%) were declared complete.

Based on observations and evaluations, the learning activities in Cycle II can be reflected in the teacher's readiness to deliver material to students, good classroom management, and preparation of the learning location. Students were accustomed to learning that took place with real-world situations as something new. Overall, learning outcomes were in line with expectations.

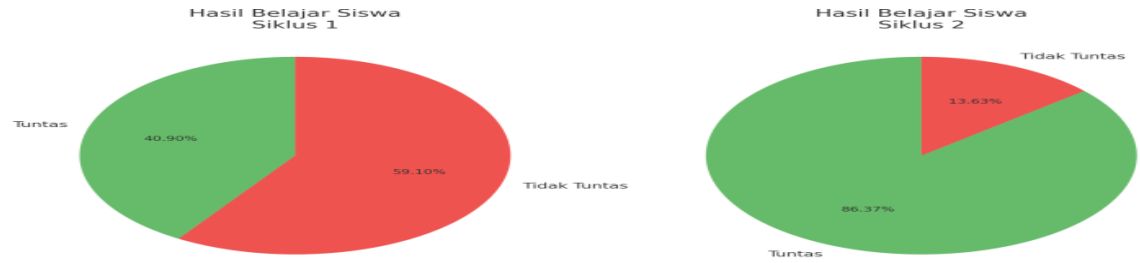
B. Discussion of Research Results

Based on the data obtained from conducting the research using two cycles, the evaluation results in Cycle 1 showed that a total of 22 students completed the learning outcomes, amounting to 9 students (41%), while 13 students (59%) did not. Therefore, the researcher did not achieve optimal results in Cycle 1, and therefore, the research was continued in Cycle II. In the results of the second cycle, the researchers obtained satisfactory results. Out of a total of 22 students, the success rate increased to 19 students with a percentage of 86%, while 3 students with a percentage of 14% were unsuccessful. Therefore, it can be concluded that there was an increase from cycle I to cycle II.

Table 4.5 Student learning outcomes in cycles I and II

Number of Students	Cycle I		Cycle II	
22	Completed	Not Completed	Completed	Not Completed
	9 (41%)	13 (59%)	19 (86%)	3 (14%)

Recapitulation of student learning outcomes in cycles I and II



V. CONCLUSION

Based on the data analysis, several conclusions can be drawn, including:

The success of learning mathematics on cylindrical geometry in fifth grade elementary school, specifically on this topic, has improved, as seen from the learning process and

outcomes. In Cycle I, 9 (41%) students completed the test and 13 (59%) students did not complete it. Meanwhile, in Cycle II, there was a significant increase, with 19 (86%) students completing the test and 3 (86%) students not completing the test (remedial work was carried out). This indicates that mathematics learning outcomes achieved the Minimum Completion Score (KKM) with a satisfactory total of 90%.

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