



Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Mariyam¹, Hanif Amrulloh², Lutfi Fadilah³

^{1,2,3}Universitas Ma'arif Lampung, Indonesia

*Correspondence: ✉ sitimariyam919@gmail.com

Article Information:

Received :12-09-2025

Revised : 29-09-2025

Accepted : 13-10-2025

Keywords: *Game based learning media, learning outcomes*

Abstract

The purpose of this study is to determine the application of game-based learning media and improve learning outcomes in mathematics subjects on flat shapes for students in grade 2 of MIS Al Yazier Rawajitu Utara. This study is a classroom action research, where each cycle consists of four stages including planning, implementation, observation, and reflection. The subjects in this study consisted of 18 students. Data were obtained through observation, testing, interviews, and documentation techniques. The results of the study indicate that game-based learning media is able to improve mathematics learning outcomes for grade 2 students of MIS Al Yazier Rawajitu Utara Mesuji in the 2024/2025 academic year. This is evidenced by the increase in students' mathematics learning outcomes in cycle II. In cycle I, only 10 students or 55.56% of students received a score of ≥ 70 , meaning there were 8 students or 44.44% who had not completed the course. While in cycle II, students' mathematics learning outcomes increased again to 16 students or 88.89%.

INTRODUCTION

An effective learning process relies heavily on the active involvement and interaction between teachers and students. In the context of an elementary school (MI), the role of learning media is crucial in helping students understand abstract and contextual concepts. (Fadilah, 2024) A teacher must at least be able to manage learning activities, from planning, implementing, to evaluating the learning process they carry out well. By having the ability in their field of knowledge, a teacher can certainly choose the right teaching models, strategies, and methods for their students. (Nalapraya, 2023) The responsibility of teachers and other educational elements is not only in terms of teaching or advancing the world of education at the school where they work, but also responsible for inviting the surrounding community to participate in advancing education in their area. Professional teachers will be reflected in the implementation of devotion to tasks marked by expertise in both material and methods. (Hidayat & Hilalludin, 2024)

Student learning outcomes, particularly in academics, depend largely on the teacher's teaching skills. In other areas, such as affective learning, it's unclear how teachers influence a child's personal or character development. However, schools are expected to develop

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

children into good citizens who understand, appreciate, and apply the values and norms upheld by the nation and state. (Nasution, 2019)

One way to improve student learning outcomes is by using instructional media tailored to the curriculum. More interactive instructional media is essential to foster interest and participation in learning activities. (Nasrudin, 2010) Instructional media can enhance student learning, which in turn is expected to enhance their learning outcomes. To achieve this, teachers need to be skilled in utilizing available instructional media to ensure students achieve the desired learning outcomes.

According to Kustiawan in Putri, Mahmudah, and Fadilah, learning media is anything used to convey messages (learning materials) so that it can stimulate students' attention, interest, thoughts, and feelings in learning activities to achieve certain learning objectives. (Putri et al., 2024)

Aisyah et al.'s research, "Game-based learning (GBL) as an innovation and solution to accelerate learning adaptation in the new normal era," states that game-based learning is effective and efficient. Based on literature studies, game-based learning has many benefits and advantages that are its strengths. If something that makes people stay in games for hours were implemented in learning methods, the results would certainly be satisfying and become a new breakthrough. Therefore, teachers can apply game-based learning to adapt from online to offline learning. (Aisyah et al., 2021). Research by Maulidina, Susilaningih, and Abidin states that packaging a lesson in game-based learning using a scientific approach is a new breakthrough learning method for learners. On the other hand, this application is also very helpful in delivering material in class and makes learners more motivated and enthusiastic in learning, as found during field research. (Maulidina et al., 2018)

Based on observations conducted by researchers at MIS Al Yazier Rawajitu Utara, it was found that student learning outcomes, especially in mathematics, were still far from what teachers expected. The learning outcomes obtained did not meet the minimum graduation standards. This was due to several factors, one of which was the inappropriate media chosen by teachers. For students to successfully understand the subject matter, teachers should be more creative and innovative in selecting learning media needed by students. Data shows that only 7 students (38.89%) had completed learning outcomes, while 11 students (61.11%) had incomplete learning outcomes. (Observation in class 2 of MIS Al Yazier Rawajitu Utara, November 2, 2024)

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

This is due to several influencing factors. One of them is the learning media used at MIS Al Yazier Rawajitu Utara, which is not very supportive. The data shows that the learning outcomes of second-grade students at MIS Al Yazier Rawajitu Utara are still weak, especially in mathematics. Among the causes is the lack of packaging mathematics lessons with interesting learning media, which makes students bored. Furthermore, some students do not pay attention to the teacher's explanations. These weaknesses are problems that require solutions in the form of learning media in the classroom to overcome these problems.

METHOD

The research used by the researcher was classroom action research. Action research is "an observation of learning activities in the form of an action, which is intentionally created and occurs collectively in a class." The research was conducted in class 2, consisting of 18 students at MIS Al Yazier.

This classroom action research used Kemmis and Taggart's spiral model, which consists of several cycles of learning actions based on reflection on the results of the previous cycle. Each cycle consists of four stages: planning, implementation, observation, and reflection.

In this case, researchers interacted with and observed students' activities and learning outcomes in the subjects studied. The research was conducted in two cycles. However, if the established success indicators were not met within the first two cycles, the study could proceed to the next cycle. Researchers used several techniques to collect data, including observation, testing, interviews, and documentation.

The expected success indicators in this classroom action research are 1) The effectiveness of the application of Game based learning media in learning mathematics on flat shape material for Class 2 students of MIS Al Yazier Rawajitu Utara in the 2024/2025 Academic Year, 2) There is an increase in the learning outcomes of mathematics on flat shape material for students by achieving the minimum completeness criteria (KKM) with a value of ≥ 70 reaching 80% at the end of the cycle after applying Game based learning media.

FINDINGS AND DISCUSSION

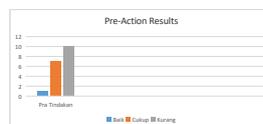
Pre Action Data Description

Before discussing the research results, it is necessary to know that game-based learning media has steps in learning, including; 1) Determining learning objectives, 2) Selecting games that are appropriate to learning objectives, 3) Preparing a learning implementation plan, 4) Determining the game system and rules, 5) Conducting simulations and arranging the game sequence, 6) Conducting participant assessments, 7) Evaluating the effectiveness of learning, 8) Adjusting the learning plan based on the evaluation results.

Based on the data obtained by the researcher, it is known that the learning activities of second-grade students at MIS Al Yazier Rawajitu Utara are still weak due to many things that become obstacles in learning mathematics material in second-grade MIS Al Yazier Rawajitu Utara. Among them are the lack of packaging mathematics learning with interesting, challenging, and enjoyable learning models or methods. These weaknesses are problems that require learning methods in the classroom to solve these problems.

The pre-action data obtained by the researcher can be seen in the following image:

Figure 01. Pre-Action Results



Source: Implementation of Game-based learning media for Grade 2 students of MIS Al Yazier Rawajitu Utara Mesuji for the 2024/2025 Academic Year

Table 01
Pre-Action Learning Outcomes

Cycle	Category	Valeu	Number of students	Percentage (%)
1	Completed	≥ 70	7	38,89%
	Not	< 70	11	61,11%

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

	Completed			
Amount			18	

The pre-action student learning outcome test, as shown in the table above, involved 18 students, with scores of 7 or approximately 38.89%, scoring ≥ 70 . This means that 11 students, or approximately 61.11%, scored <70 . Therefore, the percentage of students scoring ≥ 70 has not yet reached the indicator. This is due to the learning process not being optimal.

Description of Action Result Data

This research is a Classroom Action Research (CAR). The purpose of this study is to determine the application of Game-based learning media in improving student learning outcomes in Mathematics for grade 2 of MIS Al Yazier North Rawajitu in the 2024/2025 academic year. This research was conducted in two cycles, each consisting of two meetings. The description of each cycle is as follows:

a. Implementation of Cycle I

In cycle I, learning was carried out in 2 meetings with each meeting lasting 2 teaching hours (2 x 45 minutes). The first meeting was held on Saturday, February 8, 2025 with the material of plane shapes. The second meeting was held on Monday, February 10, 2025 with the material of plane shapes.

The stages in cycle I learning are as follows:

1) Planning

In the planning stage, researchers planned the learning process to be implemented using game-based learning media, consisting of two meetings in each cycle. The following steps were taken during the planning phase:

- a) Create a Lesson Plan (RPP) to be implemented in the teaching and learning process.
- b) Determine the topics to be presented in the research, in accordance with the Core Competencies and Core Competencies in the Lesson Plan and Syllabus.
- c) Develop a learning scenario using game-based learning media.
- d) Determine the problems to be discussed by each group.
- e) Prepare observation sheets for teacher and student activities in the learning process using game-based learning media.
- f) Prepare test equipment.

2) Implementation

a) The first meeting

This meeting was held on Wednesday, February 12, 2025 for 2 lesson hours (2 x 45 minutes), namely at 08.00-10.00 WIB. The main topic of discussion was Planar Shapes. The learning activities were as follows:

(1) Preliminary Activities

The learning activity begins with a greeting and self-introduction by the teacher, after which the teacher checks student attendance. Next, the teacher explains the material scope and the learning activity plan, and then explains the objectives to be achieved in the learning process. Before starting the lesson, the teacher first asks students what they understand about plane shapes.

(2) Core Activities

The teacher outlines the learning material, specifically about plane shapes, and students pay attention to the teacher's explanation. Next, the teacher provides direction on learning procedures using game-based learning media.

The teacher gives each student a worksheet and asks each student to work on the worksheet independently. The teacher gives approximately 20 minutes of thinking time to work on the questions in the worksheet and students use the time the teacher has given to think about/work on the questions.

The teacher divides students into four groups, each with a deskmate. The teacher then gives the groups approximately 15 minutes to discuss their answers. The teacher provides motivation to groups that are less active in the discussion.



Figure 02. Dividing Students into 4 Groups

The teacher appointed three groups to present their answers, namely the first group consisting of Ade and Agung to explain the meaning of plane shapes, the second group consisting of Ajeng and Anita who explained the

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

division of plane shapes, the third group consisting of Salma and Sekar who explained about plane shapes.

The teacher writes each group's answers on the board and students who have different answers are given the opportunity to explain their answers. Next, the teacher provides an explanation regarding the results of the students' discussion and students can ask the teacher about things they don't understand about the material they have studied.

(3) Final Activities

The teacher together with the students makes a final conclusion about flat shapes. Finally, the teacher ends the lesson by saying goodbye.

b) Second meeting

This meeting was held on Wednesday, February 12, 2025, for 2 lesson hours (2 x 45 minutes), namely at 08.00-10.00 WIB. The main topic of discussion was the definition of flat shapes. The learning activities were as follows:

(1) Preliminary Activities

Learning begins with a greeting, after which the teacher checks student attendance and then explains the scope of the material and the learning activity plan.

Before starting the lesson, the teacher first asks what the students understand about flat shapes, after which the teacher conveys the objectives to be achieved in the learning process.

(2) Core Activities

The teacher outlines the learning material, specifically about plane shapes, and students pay attention to the teacher's explanation. The teacher then provides direction on learning procedures using game-based learning media.



Figure 03. Providing Directions on Game Based Learning Media

The teacher gives each student a worksheet and asks each student to work on the worksheet independently. The teacher gives approximately 20 minutes of thinking time to work on the questions in the worksheet and students use the time the teacher has given to work on/think about the questions. The teacher provides direction to students who are having difficulty with plane shapes.



Figure 04. Students Working on the Assigned Task

The teacher divides the students into 4 groups, one of which consists of 3 people, by having the students take pictures provided by the teacher. Students who get the same picture become one group.

The teacher gives ± 15 minutes for the groups to discuss the answers they have and the students use the time given by the teacher to discuss with their groups about the questions they have worked on independently previously.

The teacher selects groups to present their answers. The teacher writes each group's answers on the board and gives students with different answers the opportunity to present theirs.



Figure 05. One of the groups presents the results of their group

The teacher provides an explanation regarding the results of the students' discussion, students can ask the teacher about things they don't understand about the material they have studied.

(3) Final Activities

The teacher together with the students made a final conclusion about flat shapes and the teacher did not forget to encourage all students to study the next material, until finally the teacher ended the lesson by saying goodbye.

The teacher gives each student a worksheet and asks each student to work on the worksheet independently. The teacher gives approximately 20 minutes of thinking time to work on the questions in the worksheet, and students use the time the teacher has given to work on/think about the questions.

The teacher divides students into 4 groups by having students sit in front of their desks and giving each group \pm 15 minutes and asking students to use the time given by the teacher to discuss with their group and provide motivation to students who do not participate enough in group discussions.

The teacher appoints three groups to present their answers. The first group presents their answers about plane shapes, while the second and third groups present their answers about plane shapes.

The teacher writes each group's answers on the board and gives students the opportunity to share their differing answers or opinions. The teacher explains the results of the students' discussions, and students can ask questions about the material they haven't understood. Then, the teacher and students draw a final conclusion, and finally, the teacher ends the lesson by saying goodbye.

3) Observation

At this stage, direct observations are conducted using a pre-prepared observation sheet. At this stage, the observation activities are conducted by an observer, taking place during the learning process. Observations are not only directed at student learning activities but also at the teacher's teaching activities. The results of the observations and assessments obtained are as follows:

a) Observation Results of the Application of Game-based Learning Media to Students

The implementation of Game-based learning media on students in cycle I was observed using an observation sheet prepared by the researcher. Data on the implementation of Game-based learning media on students in learning in

cycle I The percentage of the implementation of Game-based learning media on students from each meeting can be seen in Table 8.

Table 02
 Observation Results of the Implementation of Game-based Learning
 Media for Students in Cycle I

No	Observed indicators	Meeting		average
		1	2	
1	Students pay attention to the teacher's explanation	40%	60%	50%
2	Students think about the answers to the questions given	36,67%	63,33%	50%
3	Students collaborate with their groups to discuss their answers	43,33%	56,67%	50%
4	Presenting/sharing discussion results in front of the class	46,67%	53,33%	50%
Average		41,67%	58,33%	50%

Based on the table above, it can be seen that with the application of Game based learning media, the student learning process in cycle I increased from meeting 1 to meeting 2. At the first meeting it reached an average of 40%, the second meeting increased to 60%, the overall average of the application of Game based learning media in students in cycle I only reached 50%. The second indicator is that students think about the answers to questions given by experts at the first meeting reached 36.67%, the second meeting reached 63.33% with an average of 50%. The third indicator is that students collaborate with their groups to discuss their answers at the first meeting reached 43.33%, the second meeting reached 57.67% with an average of 50%. The fourth indicator is Presenting/sharing the results of the discussion in front of the class at the first meeting reached 46.67%, the second meeting reached 53.33% with an average of 50%.

The implementation of Game-based learning media on students in cycle 1 experienced an increase from the first meeting to the second meeting.

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

In the first meeting it reached 41.67% in the second meeting it reached 58.33% in the first meeting to the second meeting there was an increase of 16.67% in the very poor predicate.

Based on the results of the calculation of the application of Game based learning media, it can be seen that the average results obtained by students in following the learning process are still very lacking, this is because there are still many students who do not cooperate with their groups in discussing the results of their individual work, and there are also still students who are less brave to present the results of their discussions in front of the class and there are still some students who do not pay attention to the teacher during the learning process.

b) Student Learning Outcomes

Researchers determined student learning outcomes based on the results of the learning test in cycle I by examining the results of the pretest and posttest given by the teacher to 18 second-grade students. The pretest and posttest learning outcome data can be seen in Table 10 below.

Table 03

Student Pre-test and Post-test Learning Outcomes in Cycle I

Cycle	Category	Valeu	Number of students	Percentage (%)
1	Completed	≥ 70	10	55,56%
	Not Completed	< 70	8	44,44%
Amount			18	

The student learning outcome test in cycle 1 was attended by 18 students who got a score of ≥ 70 , totaling 10 people or around 55.56%. This means that there are 8 students or around 44.44% whose score is < 70 . Thus, it can be seen that the percentage who got a score of ≥ 70 has not reached the indicator. This is due to the learning process that has not been maximized.

c. Reflection

After the implementation of cycle I was completed, a reflection was then held. Based on the results of learning observations in cycle I, the reflections obtained were as follows:

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

- a) Students paid little attention to the teacher when the teacher explained the lesson material.
- b) Students did not work on the questions or problems given, because they relied on the opinions/answers of their friends who were considered smart during group discussions.
- c) Students were less enthusiastic about collaborating with their groups to discuss answers.
- d) Students also participated less in presenting/sharing discussion results in front of the class, resulting in problems for some students such as drowsiness, daydreaming, chatting, and joking with friends.

Based on the table above, and referring to the indicators of learning success, it can be concluded that the results obtained by students in the application of Game-Based Learning media have not achieved the expected targets, especially in indicators such as students paying attention to the teacher's explanation, students thinking about answers to questions given, students collaborating in groups to discuss their answers, presenting discussion results in front of the class. Learning outcomes in Cycle I also did not meet the expected target, namely not reaching 70% of students scoring ≥ 70 . Therefore, this classroom action research continued to Cycle II. Based on reflection on Cycle I, Cycle II needed to improve actions.

Furthermore, these weaknesses become material for planning corrective actions in cycle II as follows:

- a) When explaining learning materials, teachers must always relate the material to everyday life and can also use visual media to make learning more engaging.
- b) Teachers make improvements in creating student worksheets by adapting them to students' abilities, with relatively easy questions, but with the competencies to be achieved represented in the worksheets.
- c) Teachers require each student to bring a textbook or reference book relevant to the material.
- d) Teachers provide specific guidance to groups that are less active in discussions by asking prompt questions relevant to the material being taught so that students can determine the final answer based on the results of their discussions.

- e) Teachers provide rewards in the form of praise, applause, and additional points to students who actively ask questions, express opinions, or answer questions. Note that these additional points will not be applied to the results of the Cycle II test.
- f) Classroom control and time management must be improved.

b. Implementation of Cycle II

After the reflection and improvement of action planning were carried out, the second cycle of action was implemented. Learning in the second cycle was carried out in 2 meetings with each meeting lasting 2 lesson hours (2 x 45 minutes). The first meeting was on Thursday, February 13, 2025. The second meeting was on Friday, February 14, 2025. The stages in the second cycle of learning were:

1) Planning

The planning that will be carried out in cycle II is to optimize the learning process by implementing learning adapted to game-based learning media, with two meetings. The following steps will be taken in the planning:

- a) Create a Lesson Plan (RPP) to be implemented in the teaching and learning process.
- b) Determine the topics to be presented in the research, in accordance with the Core Competencies and Core Competencies in the Lesson Plan and Syllabus.
- c) Develop a learning scenario using game-based learning media.
- d) Determine the problems to be discussed by each group.
- e) Prepare observation sheets for teacher and student activities in the learning process using game-based learning media.
- f) Prepare test equipment.

2) Implementation of Actions

The implementation of cycle II aims to improve the learning process that was implemented in cycle I. The implementation of learning in cycle II was carried out in 2 meetings. At the beginning of the meeting before learning, a test (pretest) was given and at the end of the meeting a test (posttest) was given to determine student learning outcomes after being given learning actions using Game-based learning media.

- a) First Meeting

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

The first meeting was held on Saturday, February 15, 2025, with a time allocation of 2 x 45 minutes (2 teaching hours), namely at 08.00-10:00 WIB.

The learning steps at this first meeting are as follows:

(1) Preliminary Activities

Learning begins with a greeting, after which the teacher checks student attendance and explains the scope of the material and the learning activity plan.

Before starting the lesson, the teacher first asks the students what they are insurance about, then explains the objectives to be achieved in the learning process. In the first meeting, the teacher gives a pretest to determine the students' initial abilities in cycle II.

(2) Core Activities

The teacher outlines the learning material, specifically insurance, and students pay close attention to the teacher's explanation. The teacher provides directions on the learning procedure using game-based learning media and asks students to observe the pictures shown.

The teacher distributes student worksheets (LKS) to each student on the material to be studied and asks each student to work on the LKS independently. The teacher gives approximately 20 minutes to work on the questions in the LKS and asks students to use the time allotted to work on/think about the problems.

The teacher divides students into four groups by asking them to count from 1 to 10. Students who name the same number form a single group. The teacher gives each group approximately 15 minutes to discuss their answers and asks students to use the time allotted to discuss the problems they worked on independently.

The teacher asks three groups to present their discussions. The groups present their material. The teacher writes each group's answers on the board and gives students who have different answers the opportunity to explain their answers, then the teacher provides an explanation regarding the results of the discussion.

(3) Final Activities

The teacher together with the students made a final conclusion about insurance, and gave homework to the students and the teacher did not forget

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

to encourage all students to study the next material and closed the lesson with a greeting.

b) Second Meeting

The second meeting was held on Monday, February 17, 2025, for two lesson hours (2 x 45 minutes), from 8:00 a.m. to 10:00 a.m. WIB. The learning steps for this second meeting were:

(1) Preliminary Activities

The lesson begins with a greeting, after which the teacher checks student attendance and explains the material and lesson plan.

Before beginning the lesson, the teacher first asks students what they understand about plane shapes. Afterward, the teacher explains the learning objectives.

(2) Core Activities

The teacher outlines the learning material, specifically about plane figures and insurance. Students pay attention to the teacher's explanation. The teacher provides direction on the learning procedure using game-based learning media and asks students to observe the pictures shown.

The teacher distributes worksheets to each student and asks each student to work independently. The teacher gives approximately 20 minutes to work on the questions in the worksheet and asks students to use the time allotted to work on/think about the problems.

The teacher divides students into four groups by having students draw a numbered roll. Then, students with the same number form a group. The teacher gives each group approximately 15 minutes to discuss their answers and asks students to use the time allotted to discuss the problems they worked on independently.

The teacher asks three groups to present their discussions. The teacher writes each group's answers on the board and allows students with different answers to present their answers. The teacher then provides an explanation of the discussion results.

(3) Final Activities

The teacher together with the students makes a final conclusion about flat shapes, then gives homework to the students and the teacher does not forget

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

to encourage all students to study the next material and closes the lesson with a greeting.

3) Observation

At this stage, the observer conducts observations. Observations are conducted during the learning process. Observations are not only directed at student learning activities but also at the teacher's teaching activities. The following observations were obtained:

- a) Results of observations of the application of Game-based learning media to students.

The application of game-based learning media to students in the learning material in Cycle II was observed using an observation sheet prepared by the researcher. Data obtained from the learning process using game-based learning media in Cycle II can be seen in Table 104.

Table 04
Observation Results of the Implementation of Game-based Learning Media for Students in Cycle II

No	Observed indicators	Meeting		Average
		1	2	
1	Students pay attention to the teacher's explanation	70,00	76,67	73,33
2	Students think about the answers to the questions given	73,33	73,33	73,33
3	Students work together in groups to discuss their answers.	80,00	76,67	78,33
4	Presenting/sharing discussion results in front of the class	83,33	90,00	86,67
Average		76,67	79,17	

Based on Table 12 above, it can be seen that the application of Game based learning media in learning can improve the application of Game based learning media in students from meeting I to meeting 2 in cycle II. The application of Game based learning media in students paying attention to the teacher's explanation at the first meeting reached an average of 70%, with good criteria, at the second meeting reached 76.67%, with very good

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

criteria and the average application of Game based learning media in students reached 73.33%, with very good criteria at the end. The second indicator is that students think about the answers to the questions given. at the first meeting reached 73.33%, the second meeting reached 73.33%, with an average of 73.33%. The third indicator is student cooperation in groups to discuss their answers at the first meeting reached 80%, at the second meeting reached 76.67% with an average of 78.33%. The fourth indicator, presenting/sharing discussion results in front of the class, reached 83.33% in the first meeting, and 90% in the second, with an average of 86.67%.

The implementation of game-based learning media among students in Cycle II increased from the first to the second meeting. Students achieved an average of 76.67% in the first meeting, 79.17% in the second, and 77.92% from the first to the second meeting, a good rating.

b) Student Learning Outcomes

To determine student learning outcomes based on the results of the learning test in cycle II, we looked at the results of the pretest and posttest given by the teacher to 18 second-grade students. Data on pretest and posttest learning outcomes can be seen in Table 12 below.

Table 05

Student Pre-test and Post-test Learning Outcomes in Cycle II

Cycle	Category	Value	Number of students	Percentage (%)
II	Completed	≥ 70	16	88,89%
	No Completed	< 70	2	11,11%
	Amount		18	

The learning outcome test in cycle II was followed by 18 students. Students who got a score of ≥ 70 were 16 students or around 88.89% and students who got a score < 70 were 2 students or around 11.11%. In this case, the learning outcomes have shown an increase in student learning completeness from before and after being given action with the application of Game-based learning media in cycle I. In cycle II, the learning outcomes were good and had achieved the success indicators that had been determined in this research, namely achieving the Minimum Completeness Criteria (KKM) for Mathematics subjects with a score of 70%.

4) Reflection

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

The results of the second cycle of research show that the use of Game-based learning media allows students to follow the learning process well and student learning outcomes have increased quite well compared to the first cycle, so it can be concluded as follows:

- 1) Students gain a better understanding of the negative effects of environmental change and how to prevent them.
- 2) Students can apply game-based learning media to improve learning outcomes.
- 3) Students become more active, confident, and free to express their opinions during learning activities.

Action Hypothesis Testing

The application of Game-based learning media in class 2 of MIS Al Yazier Rawajitu Utara is as follows:

- a. The teacher delivers the learning material and students pay attention to the teacher's explanation.
- b. The teacher provides direction regarding learning procedures using game-based learning media.
- c. The teacher distributes worksheets to each student and asks each student to work on the worksheets independently.
- d. The teacher provides direction to students who are having difficulty with plane figures.
- e. The teacher divides students into 5 groups.
- f. The teacher provides time to discuss answers.
- g. Students discuss with their groups the problems they worked on independently earlier.
- h. The teacher appoints groups to present their answers.
- i. The teacher writes each group's answers on the board and provides an opportunity for students with different answers to present their answers.
- j. The teacher provides an explanation regarding the results of the student discussion. Students can ask the teacher about anything they don't understand about the material they have learned.

After the students understood how to solve the problems, the teacher administered a test consisting of 10 multiple-choice questions to assess their math problem-solving abilities. The questions were tested for validity and reliability, and all were found to be suitable for use as a research measurement tool.

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

The study found that game-based learning media improved student learning outcomes in second-grade mathematics at MIS Al Yazier, North Rawajitu, Mesuji.

Discussion

From the results of learning activities by applying Game based learning media in Mathematics subjects with the subject of flat shapes and flat shapes which have been carried out for 2 cycles, several findings from the results of the actions were obtained, namely as follows:

1. Application of Game-based learning media to students

The results of data analysis regarding the application of Game-based learning media to students in learning indicate that the average application of Game-based learning media among students in cycles I and II showed improvement. The average percentage of Game-based learning media application among students in cycles I and II can be seen in Table 14.

Table 06

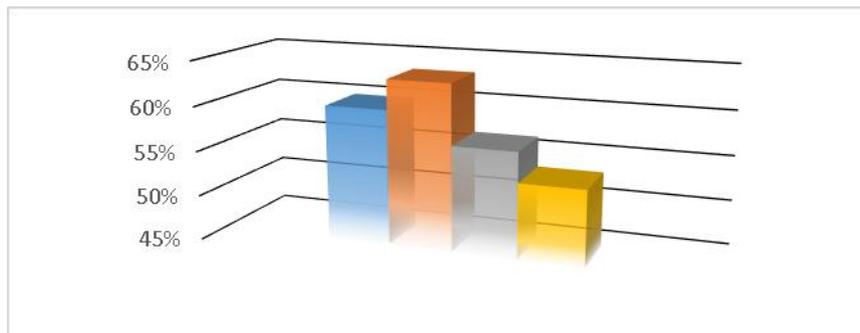
Comparison of the Application of Game-based Learning Media to Students in Cycle I and Cycle II

No	Observed indicators	Cycle		Improve ment
		I	II	
1	Students pay attention to the teacher's explanation	60%	76,67%	16,67%
2	Students think about the answers to the questions given	63,33%	73,33%	10%
3	Students work together in groups to discuss their answers.	56,67%	76,67%	20%
4	Presenting/sharing discussion results in front of the class	53,33%	90,00%	36,67%
Amount		233%	317%	83%
Average		58%	79%	21%

For more details on the improvement of the application of Game-based learning media for students in Mathematics learning using Game-based learning media, this can be seen in Figure 4:

Figure 06

Application of Game-based Learning media for students in Cycle I and Cycle II



The application of Game-based learning media to students increased from cycle I to cycle II. The results of the research on the application of Game-based learning media to students obtained in cycles I and II are as follows:

a. Students pay attention to teacher explanations

The percentage of students who applied game-based learning media to pay attention to teacher explanations in Cycle I was 60%, while in Cycle II it reached 76.67%. Student outcomes improved from Cycle I to Cycle II. This was due to students being more enthusiastic and focused during the teacher's explanations. Furthermore, students found it easier to understand the material presented by the teacher.

b. Thinking about answers to questions given

In cycle I, the percentage of students thinking about answers to questions was 63.33%, and in cycle II, it reached 73.33%. This is because to be able to complete the worksheets (LKS) provided by the teacher, students read textbooks relevant to the material being taught. The teacher also guided students to observe their surroundings or recall things they had seen. The teacher also made improvements in creating student worksheets (LKS) tailored to students' abilities. The questions in the student worksheets were almost identical to the examples in the textbook. This ensured that all students felt capable of completing the worksheets provided by the teacher by reading relevant materials from textbooks or other sources.

c. Student collaboration in groups to discuss answers

The indicator for student collaboration in groups to discuss answers reached 56.67% in Cycle I, and 76.67% in Cycle II. This is because teachers consistently provided more guidance to students who were less active in discussions. For groups experiencing difficulties, teachers provided guidance related to the material being

taught. Furthermore, teachers provided direction on the benefits of exchanging ideas in discussions, noting that individual thinking is no better than collective thinking. Through this guidance and direction, students combined their opinions to find the best answers.

d. Presenting/sharing discussion results in front of the class

In Cycle I, the indicator for students presenting/sharing discussion results in front of the class only reached 53.33%, while in Cycle II, it reached 90%. During implementation, students were more enthusiastic and confident in presenting their answers. Students were also able to use their own language to convey their presentations. This was because the teacher would reward students who asked questions, answered questions, or offered opinions on the material presented by their peers, thus motivating each student to do so. Furthermore, the teacher also motivated students by explaining that by sharing knowledge with all students, they would be able to identify weaknesses or errors, as when one student presented, the others were allowed to respond.

From the discussion above, it can be concluded that game-based learning media can be implemented in the learning process because it can improve student learning outcomes. Furthermore, game-based learning media is also applied to students who have a high level of activity from the start of the lesson.

2. Student Learning Outcomes

In this study, student learning outcomes are the result of the learning process that has been implemented. The results of students' mathematics learning in learning using game-based learning media in cycles I and II can be seen in Table 7 as follows:

Table 07

Comparison of Average Post-Test Learning Outcomes of Students in Cycle I and Cycle II

No	Analysis components	Cycle I	Cycle II	Information
1	Amount	233	317	84(increase)
2	Average value	58	79	21%(increase)

In the table above, it is explained that the learning outcomes of 18 second-grade students increased. The number of post-test scores in cycle I was 233 and in cycle II was 317, so the number of scores increased. The average score in cycle I was 58 and in the post-test in cycle II was 79. The average results indicate an increase of 21%.

Then, to improve the completeness of student learning outcomes in cycle I and cycle II, the table below can be seen:

Tabel 08

No	Analysis components	Cycle I	Cycle II	Information
1	Complete learning	55,56%	88,89%	33,34%(increase)
2	Not finished studying	44,44%	11,11%	-33,34%(decrease)

Each student who experiences improvement, whether high, medium, or low, will experience an increase in learning outcomes. Student understanding using Game-based learning media increases and learning outcomes obtained also improve from cycle I to cycle II. In cycle I was not completed while in cycle II completed, both experienced improvement by two meetings in cycle II. In the learning category, the score was less than the Minimum Completion Criteria (KKM) with the criteria of not completed, while in cycle II there was an increase, namely the score was above the Minimum Completion Criteria (KKM) with the category of completed.

From the discussion above, it can be concluded that Game-based learning media can improve the mathematics learning outcomes of second-grade students at MIS Al Yazier from cycle I to cycle II. Students who previously did not complete the learning process became complete, and students who completed the learning process in cycles I and II improved to become better.

CONCLUSION

The application of Game based learning media in class 2 of MIS Al Yazier Rawajitu Utara Mesuji is very effective. It can be seen that the percentage of the application of Game based learning media on students in paying attention to teacher explanations in cycle I was 60%, while in cycle II it reached 76.67%. In cycle I the percentage of indicators about students in thinking about answers to the questions given was 63.33% and in cycle II it reached a percentage of 73.33%. Indicators about student cooperation in groups to discuss answers in cycle I reached a percentage of 56.67%, and in cycle II it reached a percentage of 76.67%, and in cycle I the indicator about students in presenting / sharing the results of discussions in front of the class only reached a percentage of 53.33%, while in cycle II it reached 90%. The mathematics learning outcomes of class 2 students of MIS Al Yazier

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

Rawajitu Utara Mesuji in the 2024/2025 Academic Year increased. This is evidenced by the increase in the learning outcomes of 18 second-grade students. The total post-test score in cycle I was 233 and in cycle II was 317, so the total score increased. The average score in cycle I was 58 and in the post-test in cycle II was 79. The average result shows that there was an increase of 21%.

REFERENCES

- Arikunto, Suharsimi *Prosedur Penelitian Suatu Pendekatan Praktek*, (Jakarta: Rineka Cipta, 2010)
- Arikunto, Suharsimi. *Dasar-dasar Evaluasi Pendidikan*, Jakarta: Bumi Aksara, 2012
- Basri, Hasan., *Filsafat Pendidikan Islam*, Bandung: Pustaka Setia, 2019.
- Danim, Sudarwan. *Pengantar Kependidikan*, Bandung: Alfabeta, 2017.
- Departemen Pendidikan Nasional, *Kamus Besar Bahasa Indonesia*, Jakarta: Balai Pustaka, 2018
- Faizah, Haizatul., Kamal, Rahmat. "Belajar dan Pembelajaran", *Jurnal Basicedu*, Vol. 8, No. 1, 2024.
- Hamalik, Oemar. *Media Pendidikan*, Bandung: Alumni, 2018.
- Hidayat, Hilalludin, "Hak Kewajiban dan Tanggung Jawab Guru dalam Pendidikan Indonesia", *Jurnal Motivasi Pendidikan dan Bahasa*, Vol. 2, No. 3, September 2024.
- Hidayat, R. "Game-Based Learning: Academic Games sebagai Metode Penunjang Pembelajaran Kewirausahaan," *Bul. Psikol.*, vol. 26, no. 2, 2018.
- Hikmawan, Rizki, et al. "Ikigai as student high order literacy skills intrinsic motivation learning Template." *Journal of Education Research and Evaluation* 4.1 2020.
- Kementerian Pendidikan Nasional, *Pedoman Pelaksanaan Penilaian Kinerja Guru*, Jakarta: Direktorat Jenderal Peningkatan Mutu Pendidik & Tenaga Kependidikan, 2011
- Maulidina, Arbayu, Mochammad., Susilaningsih Susilaningsih, and Zainul Abidin. "Pengembangan *Game based learning* Berbasis Pendekatan Sainifik Pada Siswa Kelas Iv Sekolah Dasar." *JINOTEP Jurnal Inovasi Dan Teknologi Pembelajaran*): Kajian Dan Riset Dalam Teknologi Pembelajaran 4.2 2018
- Mulyasa, *Menjadi Guru Profesional Menciptakan Pembelajaran Kreatif dan Menyenangkan*, (Bandung: Remaja Rosdakarya, 2011
- Mustaqim, *Psikologi Pendidikan*, Semarang: Fakultas Tarbiyah IAIN Walisongo Semarang bekerjasama dengan Pustaka Pelajar, 2008.
- Nalapraya, Sandy Pradipta. "Tugas, Peran, dan Tanggung Jawab Menjadi Guru Profesional", *Pusat Publikasi S-1 Pendidikan IPS FKIP ULM*, Seri Publikasi Pembelajaran, 2023.
- Narbuko, Cholid., Achmadi, Abu. *Metodologi Penelitian* Jakarta: Bumi Aksara, 2015.
- Nasrudin, Endin., *Psikologi Manajemen*, Bandung: Pustaka Setia, 2018
- Nasution, S. *Sosiologi Pendidikan*, Bandung: Bumi Aksara, 2011
- Nata, Abuddin. *Perspektif Islam tentang Strategi Pembelajaran*, Jakarta: Kencana, 2017.

Application of Game based Learning Media to Improve Learning Outcomes of Mathematics Subjects for Flat Shape Material for Grade 2 Students at Mis Al Yazier Rawajitu Utara

Siti Maryam, Hanif Amrullah, Lutfi Fadilah

Riyanto, Yatim. *Metodologi Penelitian Pendidikan*, Surabaya; SIC, 2010

Sagala, Syaiful. *Konsep dan Makna Pembelajaran*, Bandung: Alfabeta, 2012.

Setiawati, Siti Ma'rifah. Telaah Teoritis: Apa Itu Belajar?’, *Helper: Jurnal Bimbingan dan Konseling FKIP UNIPA*, Vol. 35, No. 1, 2018.

Slameto, *Belajar dan Faktor-faktor yang Mempengaruhinya*, Jakarta: Rineka Cipta, 2017.

Soemanto, Wasty. *Psikologi Pendidikan*, Jakarta: Rineka Cipta, 2017

Suarim, Biasri., Neviyarni, “Hakikat Belajar Konsep pada Peserta Didik”, *Edukatif: Jurnal Ilmu Pendidikan*, Vol. 3, No. 1, 2021.

Sudijono, Anas., *Pengantar Statistik Pendidikan*, Jakarta: Rajawali Pers, 2011

Sudjana, Nana. *Penilaian Hasil Proses Belajar Mengajar*, Bandung: Remaja Rosdakarya, 2009

Syah, Muhibbin., *Psikologi Pendidikan dengan Pendekatan Baru*, Bandung: Remaja Rosdakarya, 2019

Wibawa, Aisyah Cinta Putri., Mumtaziah, Hashina Qiamu., Sholaihah, Lutfiah Anisa., Hikmawan, Rizki. “Game-Based Learning (GBL) Sebagai Inovasi dan Solusi Percepatan Adaptasi Belajar pada Masa *New Normal*”, *Integrated (Information Technology and Vocational Education)*, Vol. 3, No. 1, April 2021.

Wulan, Dian., *Macam-macam Media Pembelajaran*, dianwulan28.blogspot.com, Semarang, 2013

Zulkifli, *Pengertian Media Menurut Para Ahli*, wordpress.com, 2019