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IMPROVING UNDERSTANDING OF ECOSYSTEM MATERIAL THROUGH DIORAMA MEDIA WITH THE PROJECT BASED LEARNING (PJBL) LEARNING MODEL FOR STUDENTS OF GRADE VB MI ZAINUL ANWAR KRAKSAAN PROBOLINGGO IN 2025

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Abstract: This research is motivated by the low understanding of class V B students of MI Zainul Anwar regarding ecosystem material. The pre-cycle results showed that the average student score only reached 66.5, with the majority being in the low (44.4%) and very low (11.1%) categories, which indicates that the learning process is still dominated by lecture methods and the use of textbooks, so that students are less active and have difficulty in understanding abstract concepts. This study aims to improve student understanding through the use of diorama media with the Project Based Learning (PjBL) learning model. The method used is the Classroom Action Research (CAR) model of Kemmis and McTaggart, which includes four stages, namely planning, action, observation, and reflection. The research subjects consisted of 18 class V B students of MI Zainul Anwar in the odd semester of the 2025/2026 academic year. Research data were collected through learning outcome tests, observations, field notes, and documentation, then analyzed descriptively quantitatively and qualitatively to describe the development of student understanding and their involvement in the learning process. The results of the study showed a significant increase in each cycle, where the average student score increased from 66.5 in the pre-cycle to 79.25 in the first cycle, and reached 86.5 in the second cycle. The percentage of students in the high category also increased from 11.1% in the pre-cycle to 33.3% in the first cycle, and 66.7% in the second cycle. Classically, this study was declared successful because more than 85% of students had achieved minimum mastery. Thus, the application of diorama media through the PjBL learning model has proven effective in improving the understanding of ecosystem concepts, while encouraging active involvement, creativity, and student cooperation in the learning process.
Keywords: Ecosystem, Diorama, Project Based Learning (PjBL)

Introduction

The introduction section must contain (in sequence) a general background, a previous literature study (state-of-the-art) as a basis for the statement of scientific novelty of the article, a statement of scientific novelty of science, and a research problem or hypothesis. At the end of the introduction, the purpose of the article should be clearly written. In the scientific article format, it is not permissible to review the literature as in the research report, but it is manifested in the form of a previous study review (state-of-the-art) to demonstrate the scientific novelty of the article. Learning Natural and Social Sciences (IPAS) plays a crucial role in providing students with basic knowledge about the interrelationships between living things and their environment. One key topic in IPAS is ecosystems, which teach the interactions between biotic and abiotic components and how to maintain environmental balance. Understanding

ecosystems not only broadens students' scientific knowledge but also instills a caring attitude toward the environment and an awareness of preserving it from an early age. This aligns with the goal of basic education to develop a generation with knowledge and character, capable of critically and creatively facing the challenges of modern life (Siti, 2025).

However, in practice, learning about ecosystems is often perceived as abstract by elementary school students, especially at the Madrasah Ibtidaiyah level. Material explaining the interrelationships between ecosystem components is often difficult to visualize through text alone or teacher explanations without supporting media. This condition leads to a lack of student motivation to learn (Andi Setiawan, 2021). Therefore, teachers must develop and implement strategies, methods, and techniques to make learning more engaging and enjoyable. Furthermore, teachers are required to thoroughly master the application of learning formats and their implementation stages.

According to the researcher's findings regarding the pre-test on 18 students of class V B MI Zainul Anwar in the 2025/2026 academic year, it was found that 2 students (11.1%) had low scores, namely an average score of 27. A total of 8 students (44.4%) obtained a tendency for a score of 62. Furthermore, 6 students (33.3%) obtained a tendency for a score of 77. Meanwhile, only 2 students (11.1%) obtained a high score with a score of 92.5. This finding indicates that most students still have difficulty in understanding ecosystem material.

Initial observations conducted on Tuesday, August 30, 2025, at MI Zainul Anwar showed that the teaching process was progressing well, but was less engaging due to the lack of innovative learning media. Teachers tended to use lectures and textbooks as primary resources, without any variation in learning styles, which resulted in students being less active, easily bored, and less motivated to understand the material. This problem directly impacted students' understanding of ecosystem concepts.

The learning process can proceed effectively if the teacher is able to convey the material clearly and the students understand it well. The success of learning activities is also inseparable from the use of learning media, which plays a crucial role in supporting the process (Ayuna Sapitri, 2024).

In learning activities, teachers are the primary factor determining the success of achieving educational goals. This is because teachers act as role models and spearheads, greatly influencing the teaching and learning process (Lia, 2024).

Thus, students need to receive guidance so that they can develop in accordance with the goals of the educational institution and contribute to the success of the implementation of education (Siti, 2024).

To solve this problem, an alternative solution is needed by utilizing diorama media and implementing the Project Based Learning (PjBL) learning model (Ahmad Fauzi, 2020). Project-based learning is learning that includes cooperative learning in it (Ayuna,2024). Diorama media is a display media in the form of a three-dimensional miniature that depicts certain objects or events in real life (Rahmawati dewi, 2022). In the context of ecosystem learning, dioramas can visually display the relationship between biotic and abiotic components, making it easier for students to understand concepts that were previously considered abstract (Azhar Arsyad, 2017). With its concrete and attractive form, dioramas can strengthen students' focus, interest, and ability to remember learning materials.

On the other hand, this learning model is a project-based teaching method and demands active participation from students in the planning, implementation, and completion of the project (Yulia Fitriani, 2021).

Through PjBL, students are encouraged to think critically and creatively. This approach aligns with the latest curriculum concept, which focuses on active and contextual learning (Muhammad Yusuf, 2018).

In its implementation in class V B MI Zainul Anwar, a total of 18 students were divided into three groups, each group consisting of 6 people. Each group was given the task of compiling and creating an ecosystem diorama, for example a land ecosystem, an aquatic ecosystem, or an artificial ecosystem. Through this group work, students learned to divide tasks, discuss, collect information, and express their creative ideas in the form of a real project. The teacher acted as a facilitator who provided direction, monitored the process, and helped if there were obstacles. With this system, all students could actively participate according to their respective abilities, so that in addition to improving their understanding of the concept of ecosystems, learning also trained social skills, teamwork, responsibility, and problem-solving abilities (Trianto, 2017).

By combining diorama media and the PjBL model, it is expected that students will find it easier to master an ecosystem concept significantly. Diorama media functions as a concrete visual form to help understand the concept, while the PjBL model provides opportunities for students to increase student activity. The combination of the two not only creates a more interesting learning process, but also improves conceptual understanding, social skills, and environmental awareness. Thus, this study is directed at Improving Understanding of Ecosystem Material Through the Application of Diorama Media with the Project Based Learning Model in Class V B Students of MI Zainul Anwar in the 2025/2026 Academic Year.

Method

The Classroom Action Research (CAR) method applied in this study is based on the Kemmis and Taggart model, encompassing four main stages: formulation, action, observation, and reflection. Planning involves identifying problems and developing improvement strategies, followed by implementing the action in the classroom (Aqib, 2017). The results of these actions are systematically observed and recorded during the observation phase, then analyzed during the reflection phase to determine the success of the actions and plan for the next cycle. Each cycle is intended to continuously and contextually improve learning practices according to classroom needs (Suharsimi. A, 2015).

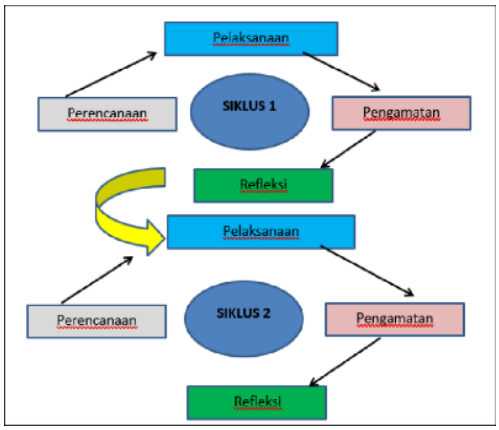


Figure 1. CAR Flow

This research was conducted at MI Zainul Anwar Alassumur Kulon Krakasaan. The madrasah is an A-accredited madrasah with 90% of the teachers there having teacher certification. However, in learning practices, especially in class V B in social studies learning, students are still passive and are not given enough roles by the teacher based on observation findings, it is known that around 60% of students lack focus and have difficulty understanding the material. This study was conducted in the First Semester of the 2025/2026 Academic Year, or from July to September. The target in this study was class V B students in the 2025/2026 academic year. The research subjects were 18 students, of which 9 were female and 9 were male. This study lasted for three months, starting on July 28 to September 25, 2025.

Research Procedures

In this study, researchers utilized various instruments to collect comprehensive data, including observation sheets used to directly record the subjects' behavior or activities, pre-tests administered before treatment to determine the participants' initial conditions, tests as a means of measuring ability or knowledge, field notes made during the observation process at the research location, and documentation in the form of photographs, recordings, or other supporting documents. All of these instruments were used in an integrated manner to ensure the data obtained was more accurate and could be used as a basis for research analysis.

Pre-Cycle

Teachers still rely on lectures and textbooks as primary learning resources. Limited use of learning media leads to students easily becoming bored and struggling to grasp ecosystem concepts. Observations show students are less active, easily bored, and have low learning motivation.

Cycle 1

In cycle 1 research after carrying out the pre-cycle, namely having the following action stages:

1. Planning Stage
2. Identify the science learning concept, namely the Ecosystem topic.
3. Develop a teaching module using dioramas.
4. Divide students into three groups (6 students each).
5. Prepare materials and tools for creating the ecosystem diorama (styrofoam, manila paper, pictures of plants and animals, glue, scissors, etc.).
6. Develop research instruments: observation sheets and test questions.

Implementation Stage

During the implementation phase, fifth-grade students at MI Zainul Anwar implemented the Project-Based Learning (PjBL) model using a diorama. The activity stages in the first cycle are outlined below:

Introductory Activities (10 Minutes)

At the beginning of the lesson, it was opened by greeting, praying before learning led by the class leader and taking student attendance. The teacher greeted the students, and only some students answered, because of lack of enthusiasm, the teacher asked how they were using jargon and continued with Ice Breaking (Encouraging Applause) to encourage students to be enthusiastic in learning. Next, conveying the learning objectives focused on studying ecosystem material, and reviewing yesterday's learning (Aperception). Students were given 2 trigger questions (who could answer could raise their hands and answer the questions). Students who answered were given a thumbs up and given words of praise and motivation.

Core Activities (40 Minutes)

At the beginning of the core stage, the teacher briefly explains the basic concepts of ecosystems. This explanation covers the definition of an ecosystem, biotic and abiotic components, and the interrelationships between living things in maintaining environmental balance. This explanation is presented in a simple manner so that students can easily understand and prepare to carry out the project activities.

Next, the teacher forms three groups of six students. These groups are selected proportionally to ensure a balanced distribution of student abilities, allowing each group to work optimally.

Each group is then given the task of creating an ecosystem diorama project. The diorama's theme varies, for example, terrestrial ecosystems, aquatic ecosystems, or artificial ecosystems. This activity aims to help students visualize the relationships between ecosystem components concretely through three-dimensional miniatures.

Students begin discussions, divide tasks, and assemble the diorama according to their group's theme. They work together to prepare materials, design the layout, and add elements representing living things and their environment. This discussion process encourages students to learn to share roles, take responsibility, and help each other.

Throughout the activity, the teacher acts as a facilitator by guiding, monitoring, and providing guidance if the group encounters difficulties. The teacher also motivates all group members to participate actively, creating a collaborative, enjoyable, and meaningful learning process.

After completing the diorama, the teacher gives each group the opportunity to present their findings. In the presentation, students explain their chosen ecosystem theme, the biotic and abiotic components displayed, and the interrelationships between living things that form a food chain or food web.

Other groups are given the opportunity to ask questions and express their appreciation for the presented work. This creates an interactive learning environment, while also fostering speaking, listening, and respecting others' opinions.

Next, the teacher responds to and reinforces the discussion and presentations. The teacher reiterates key ecosystem concepts, corrects any misconceptions, and rewards creativity and collaboration among students.

As a form of individual evaluation, the teacher administers a test on constructing an ecosystem food chain. This test allows the teacher to determine the students' understanding of the lessons taught during the project.

Closing Activities (10 Minutes)

The learning activity concluded with a group reflection, where students shared their experiences, impressions, and new insights they learned through the diorama project. This learning process fostered and fostered environmental awareness and responsibility in group work.

Observation Stage

Researchers observed student activities (enthusiasm, cooperation, creativity, and engagement). Recorded student responses to learning using dioramas.

Reflection Stage

In this step, the researchers analyzed the evaluation findings from the learning activities that had been implemented. Overall, there was an increase in students' understanding of the concepts of ecosystems and food chains compared to the initial situation. This was evident in the increasing number of students who were able to identify producers, consumers, and decomposers in an ecosystem. However, some students still had difficulty explaining the flow of the food chain coherently and logically.

These challenges indicate that students do not fully understand the cause-and-effect relationships between the components involved in the food chain, particularly regarding the roles and interrelationships between organisms. Furthermore, some students tended to memorize without truly connecting concepts to real-world examples in their environment.

Based on these findings, the researchers concluded that improvement strategies were needed in the next cycle, namely by placing greater emphasis on the interrelationships between ecosystem components through the use of visual media, small group discussions, and contextual practice questions. Furthermore, individual tests were needed to more deeply gauge students' understanding and assess each student's personal development. Through this series of improvement steps, it was hoped that existing obstacles could be minimized and learning objectives could be optimally achieved.

Cycle 2

After completing the research in the first cycle, the researcher continued the research process by following each of the same steps as in the first cycle. This process was repeated until the problem was resolved or the research was declared complete because the desired target had been achieved and met expectations.

Field Data Collection Tools

To measure learning success, researchers used learning outcome tests in each cycle. Before the learning process began, students were given a pre-test to determine their initial understanding of the ecosystems material. After the diorama-based learning and Project-Based Learning (PJBL) model were completed, at the end of Cycles I and II, students were given another post-test to measure their learning outcomes. This allowed for the development of student understanding. Furthermore, the reviewer provided individual assessments in the form of constructing an ecosystem food chain.

In addition to the test instruments, researchers also used student activity observation sheets. These observations were conducted to document students' levels of participation, cooperation, enthusiasm, and engagement during the learning process. Through these observations, researchers obtained more comprehensive data, encompassing cognitive, affective, and psychomotor aspects. Documentation was used to corroborate the data collected in the field.

Data Analysis Techniques

The method used in this study was descriptive data analysis, encompassing both quantitative and qualitative approaches. Quantitative data came from pre-test and post-test findings, which were analyzed to determine the increase in most students' scores and the percentage of students achieving learning mastery (Sugiyono, 2019). Qualitative data was collected through observations of student activities and field documents, then the researcher analyzed the level of participation.

$$KB\ (Learning\ Completeness) = \frac{Number\ of\ Students\ Completed\ x\ 100\%}{Total\ Number\ of\ Students}$$

The percentage values are categorized according to the following criteria values:

Percentage (100%)	Criteria
0 - 50	Very Low
55 - 69	Low
70 – 84	Medium
85 - 100	Higest

$$Average\ value = \frac{Total\ Amount}{Number\ of\ Students}$$

Nilai Rata-rata dikategorikan sesuai nilai kriteria dibawah ini:

Average	Criteria
25	Very Low
62	Low
77	Medium
92,5	Higest

If the student learning outcomes meet the KKM value for the Ecosystem Science subject of 75 with 85% completion, this research is declared successful.

Success Indicators

The research success indicators were determined by two main criteria. First, individual student learning completion was determined by achieving a minimum score according to the Minimum Completion Criteria (KKM) set by the Madrasah. Second, as a class, learning was deemed successful if at least 85% of the total students had completed the learning process as assessed by the teacher. Furthermore, success was also measured by increased student learning

activity, including participation, collaboration, and the ability to successfully complete the ecosystem diorama project.

Results and Discussion

Before carrying out the action in each cycle, the researcher first carried out the pre-cycle stage by giving a pre-test. After that, the activity continued to the first and second cycles, there was one meeting lasting one hour on the subject of the Natural Sciences (IPAS) ecosystem material through diorama media with the Project Based Learning model. In cycle 1 on Wednesday, September 3, 2025 in the subject of IPAS learning in groups (3 groups) each group of 6 student members. In cycle 2 on Wednesday, September 17, 2025 in the subject of IPAS, individual tests were conducted to determine the improvement in abilities of each student.

Research result

This study demonstrates that students' understanding of ecosystems in the VB MI Zainul Anwar class improved after implementing dioramas through the Project-Based Learning (PjBL) model. This progress is evident in the test scores given at each learning phase.

This research was conducted through three main stages: the pre-cycle, which included a pre-test, cycle I, and cycle II. Data collection utilized several instruments, including student achievement tests to measure academic ability, observations of student activities and participation during the learning process, and systematic field notes to document every incident or behavior relevant to the study. This approach was used to ensure the data obtained provided an accurate and comprehensive picture of student development throughout the study.

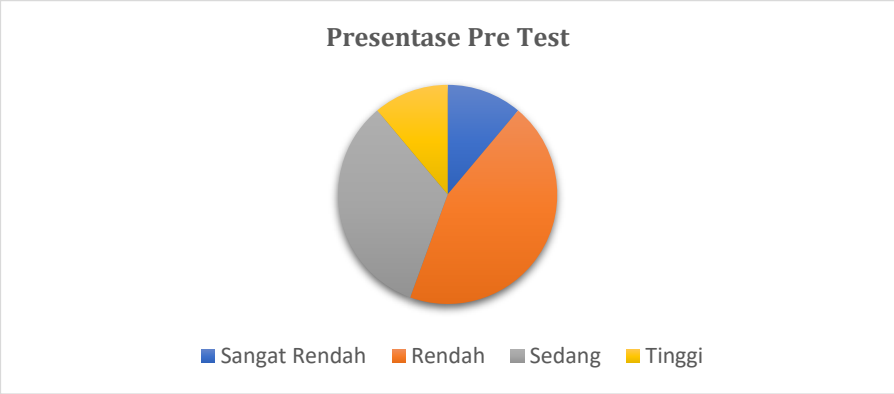
Pre-test Results (Pre-cycle)

A pre-test was conducted on August 30, 2025, to identify students' initial abilities before treatment. Based on the test results, an average score of 66.5 was obtained, indicating that most students had not yet achieved the specified KKM (75). This indicates that students still have difficulty understanding the basic concepts of ecosystems, especially in the aspects of food chain composition and the relationships between ecosystem components. Based on the average score using the initial assessment, namely:

Table 1. Average Ecosystem Pretest

Category	Range of Grades	Number of Students	Percentage	Average Grade
Very Low	0 - 50	2	11,1%	27
Low	55 - 69	8	44,4%	62
Medium	70 - 84	6	33,3%	77
High	85 - 100	2	11,1%	92,5
Total	-	18	100%	66,5

Graph 1. Percentage Value of Learning Outcomes of Class VB Students



Based on the pre-test results in this phase, students mostly obtained a score of 66.50, which is included in the low category. Therefore, the learning process was designed and implemented with the primary goal of improving student learning outcomes while encouraging their active participation in the science subject in class V B MI Zainul Anwar. This learning implementation emphasized strategies that could stimulate active student participation and maximize the achievement of established competencies.

Figure 2. Pre-Cycle. Students Working on Ecosystem Pretest Questions

Results of Cycle I

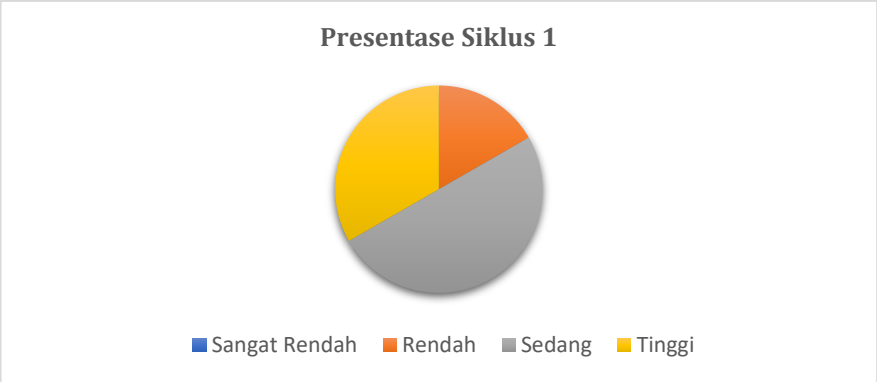
Cycle I was implemented on September 3, 2025, using diorama media and the Project-Based Learning (PjBL) model. Students were divided into three groups to develop an ecosystem diorama project. During this stage, the teacher acted as a facilitator, providing direction, guidance, and supervising the group discussions.

Assessment findings conducted after the first cycle showed an increase in the average score to 79.25. This level demonstrates that the use of dioramas can help students understand ecosystems more concretely. However, some students still had difficulty designing a complete and logical food chain. The average scores obtained based on the pre-test results were:

Table 2. Results of the Posttest Cycle I Ecosystem Understanding

Category	Range of Grades	Number of Students	Percentage	Average Grade
Very Low	0 - 50	0	0%	-
Low	55 - 69	3	16,7%	59,5
Medium	70 - 84	9	50,0%	77
High	85 - 100	6	33,3%	92,5
Total	-	18	100%	79,25

Graph 2. Cycle 2 Improving Understanding of Ecosystem Material Through Diorama Media with Models (PJBL)



The use of the (PjBL) model in the science subject in class V B MI Zainul Anwar received a positive response from students. They appeared more active, enthusiastic, and bold in expressing their opinions. Despite its weaknesses, students were still noisy in exchanging opinions because there were too many group members, namely 6 students. The evaluation results in the form of a post-test showed an increase in student learning achievement in the science subject in class V B MI Zainul Anwar.

Figure 3. Improving learning through Diorama media with the Project Based Learning (PJBL) model

Results of Cycle II

The second cycle of work was conducted on September 17, 2025. Improvements were made by providing more detailed explanations of ecosystems, guiding more intensive group discussions, and adding an individual test in the form of constructing an ecosystem food chain.

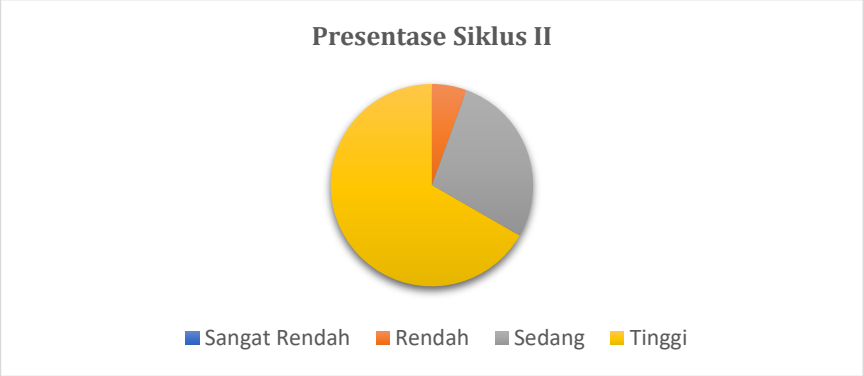
The assessment in the closing phase increased to 86.5. This finding indicates that the majority of students had achieved, or even exceeded, the Minimum Competency (KKM) score (75). This improvement demonstrates that the application of dioramas combined with the Project-Based Learning model is beneficial for deepening students' mastery of ecosystems.

Researchers in Cycle 2 observed and completed observation sheets using the same format as in Cycle 1, which was a test or quiz. However, for the Ecosystem topic, the focus of this observation was on constructing a food chain by identifying producers, consumers, and decomposers. The average results were:

Table 3. Results of the Posttest Cycle II Ecosystem Understanding

Category	Range of Grades	Number of Students	Percentage	Average Grade
Very Low	0 - 50	0	0%	-
Low	55 - 69	1	5,56%	62
Medium	70 - 84	5	27,78%	77
High	85 - 100	12	66,67%	92,5
Total	-	18	100%	86,5

Graph 2. Cycle 2: Increasing Individual Understanding of Ecosystem Material



Based on the data, the results from the first phase of the pre-test to the post-test showed an improvement, with an even greater increase in the Cycle II post-test. The majority of students reached the high category (85–100), with 12 students (66.67%) and an average score of 92.5. Only 5 students (27.78%) fell into the medium category (70–84) with an average score of 77, and 1 student (5.56%) remained in the low category (55–69) with an average score of 62.

Overall, the average class score in Cycle II reached 86.5, indicating a significant improvement compared to the results in the pre-cycle and Cycle I. These data demonstrate that the learning implemented not only reduced the number of students in the low category but also encouraged a majority of students to reach the high category.

These findings also indicate that this model has proven beneficial for the development of student understanding. With this achievement, it can be concluded that the research objective in order to improve the learning achievement of class V B MI Zainul Anwar students in the science subject through the application of the designed learning strategies can be said to be successful.

Figure 4. Researchers Improve Understanding Through Individual Tests

Hasil Belajar

After each learning cycle, an evaluation was conducted to assess the progress of learning outcomes. Researchers conducted reviews to assess the extent to which students' mastery of the material had improved using this model.

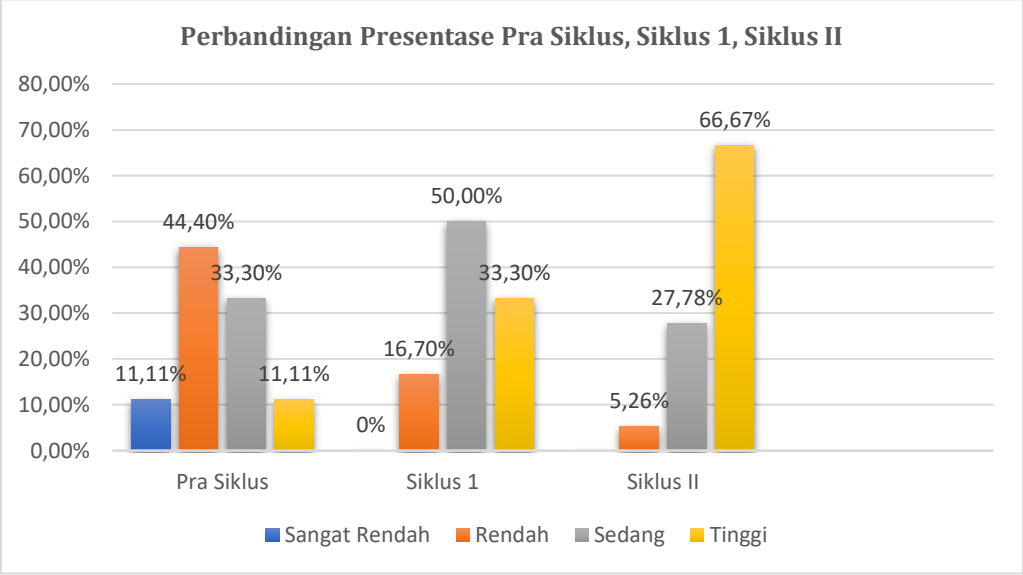
Researchers observed differences in student learning assessment completion scores between the pre-cycle, cycle 1, and cycle 2, as shown in the data below:

Table 3. Average Comparison Values of Pre-cycle, Cycle 1, and Cycle II.

No	Action Stage	Very low (0-50)	Low (55-69)	Medium (70-84)	High (85-100)
1	Pre-Cycle	11, 1%	44,4%	33,3%	11,1%
2	Cycle 1	-	16,7%	50,0%	33,3%
3	Cycle 2	-	5,56%	27,78%	66,67

Based on the distribution of student learning outcomes at each stage of the action, significant improvement was observed from the pre-cycle to Cycle II. In the pre-cycle stage, the majority of students were still classified as low (44.4%) and medium (33.3%) students, while 11.1% were classified as very low. Only 11.1% of students had reached the high category.

Graph 3. Comparison Percentage Values of Pre-Cycle, Cycle 1, and Cycle II



Based on the comparative assessment, scores appear to improve with each learning cycle. In the pre-test phase, the majority of students remained in the low (44.4%) and medium (33.3%) categories, while only 11.1% reached the high category. Furthermore, 11.1% of students were classified as very low.

Entering cycle 1, there were quite positive changes. Students in the very low category decreased to 0%, the low category decreased to 16.7%, the medium category increased to 50%, and the high category increased to 33.3%. This indicates an improvement in student understanding after the interventions in the first cycle.

More significant changes were seen in cycle 2. Meanwhile, the medium category decreased to 27.78%, but this was offset by a very high increase in the high category, reaching 66.67%.

Overall, these results indicate that from pre-cycle to cycle 2, there was a clear shift from the very low and low categories to the high category. Therefore, the researchers concluded that implementing the measures in this study was effective in improving student learning outcomes.

Conclusion

Based on the assessment conducted in class 5B of MI Zainul Anwar, it can be concluded that the use of dioramas through this model has proven effective in improving students' understanding of ecosystems. This is demonstrated by the increase in student scores, from 66.5 in the pre-cycle, to 79.25 in the first cycle, and again to 86.5 in the second cycle. Furthermore, the student completion rate exceeded 85%, meeting the Minimum Completion Criteria (KKM). Therefore, it can be concluded that the implementation of dioramas based on PjBL has successfully improved student learning outcomes.

In light of these results, teachers are expected to continue innovating in using concrete and engaging learning media. Schools are expected to provide adequate infrastructure to support the implementation of innovative methods. Furthermore, similar research can be developed on other materials or at different levels to enrich effective learning strategies in elementary schools.

References

Aqib, Zainal. 2017. *Penelitian Tindakan Kelas untuk Guru SD, SMP, dan SMA*. Bandung: Yrama Widya.

Arikunto, Suharsimi. 2015. *Penelitian Tindakan Kelas*. Jakarta: Bumi Aksara.

Arsyad, Azhar. 2017. *Media Pembelajaran*. Jakarta: Raja Grafindo Persada.

Fauzi, Ahmad, dan Hidayat, Rahmat. 2020. "Efektivitas Model Project Based Learning terhadap Hasil Belajar IPA di Sekolah Dasar." *Jurnal Pendidikan Dasar Nusantara*, 6(1).

Fitriani, Yulia, dan Wahyudi, Ahmad. 2021. "Implementasi Project Based Learning dalam Pembelajaran IPA di Sekolah Dasar." *Jurnal Pendidikan Sains Indonesia*, 9(2), 213–222. doi:10.24815/jpsi.v9i2.20638

Hasanah Miftahul, Ni'mah Mamluatun, Anwar Choerul Badruttamam, 2024 Analisis Penerapan Profil Pelajar Pancasila dalam Pembentukan Karakter Siswa di MI Walisanga 1 Banyuanyar, Berkala Ilmiah Pendidikan (Volume 4 Nomor 3, November).

Hosnan. 2016. *Pendekatan Saintifik dan Kontekstual dalam Pembelajaran Abad 21*. Bogor: Ghalia Indonesia.

Nisa' Sayidatun Awaliyah, Ni'mah Mamluatun, Holis Fatih Ahnaf. Efektifitas Model Pembelajaran Role Playing pada Materi Cerita Pendek Kelas XI di SMA Ar-Rofi'iyyah Probolinggo, *Jurnalistrendi: Jurnal Linguistik, Sastra, dan Pendidikan* DOI 10.51673/jurnalistrendiv8i1.1383|P-ISSN: 2527-4465 | E-ISSN: 2549-0524|.

Rahmawati, Dewi, dan Puspitasari, Lilis. 2022. "Penggunaan Media Diorama untuk Meningkatkan Pemahaman Konsep IPA di Sekolah Dasar." *Jurnal Pendidikan dan Pembelajaran Dasar*, 3(1)

Ruriska Lia Nuriya Alallah, Ni'mah Mamluatun, Ainul Firdaus Yaqin, Strategi Reading A Loud Dalam Menumbuhkan Minat Baca Peserta Didik di MI Nurul Islam, BADA'A: *Jurnal Ilmiah Pendidikan* DasarVol. 5, No. 1, Juni 2023, Hal. 199-207 E-ISSN: 2714-7711DOI: 10.37216/badaa.v5i1.926.

Sapitri Ayuna, Ni'mah Mamluatun, Fitri Nur Amalia, Pengembangan Media Pembelajaran Gambar Berseri Pop Up Book Dalam Meningkatkan Keterampilan Menulis Siswa MI Mirqotul Hasaniyah Probolinggo. *Jurnal Kewarganegaraan* Vol. 8 No. 1 Juni 2024P-ISSN: 1978-0184 E-ISSN: 2723-2328.

Sugiyono. 2019. *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Ulfatun Siti Hasanah. Ni'mah Mamluatun, Ahyar Mohamad Ma'arif, Manajemen Peserta Didik Dalam Meningkatkan Komunikasi Belajar Siswa di SDN Alassumur Lor I. *Jurnal Kewarganegaraan*Vol. 8 No. 1 Juni 2024P-ISSN: 1978-0184 E-ISSN: 2723-2328.

Wulandari, Sri, dan Mulyono. 2020. "Project Based Learning dalam Meningkatkan Kreativitas dan Pemahaman Konsep IPA." *Jurnal Ilmiah Pendidikan Dasar*, 7(1), 34–44. doi: 10.30659/pendas.7.1.34-44

Yusuf, Muhammad. 2018. *Strategi Pembelajaran Abad 21*. Jakarta: Kencana.