



Teachers vs Students Perception: Implementation of Eco-PjBL Learning on the Madrasah Ibtidaiyah located at Tuban Coastal Area

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Abstract

Coastal environments offer rich and authentic natural laboratories for integrating science, values, and practical skills. Therefore, Madrasah Ibtidaiyah located in coastal areas have the potential to develop contextual learning with unique natural resources and environmental issues. This study aims to measure how MI teachers and students perceive the implementation of the coastal area-based eco-PjBL model. This study uses a qualitative approach with a descriptive research type. This study uses in-depth field data on the perceptions of teachers and students of MI towards the implementation of the Eco-Project Based Learning model. MI Al Musthofawiyah Palang was chosen as research location, which is close to the coastal area and has implemented eco-PjBL learning. Data were collected through interviews, observation, and documentation which involved 5 classroom teachers and 4 students from grades 4th and 5th. The analysis model used was the interactive model of Miles and Huberman. Data validity was tested through source and technique triangulation. Some findings in this study include the potential, challenges, and obstacles identified from the perceptions of teachers and students at MI Al Musthofawiyah Palang. The results of this study are expected to have an impact, especially for educators, to better understand the students' perspective in optimizing the application of the coastal area-based eco-PjBL model. This is in line with the role of teachers as the main facilitators in a student-centered learning paradigm. In the future, similar studies need to be conducted at the same level or below, especially in more varied ecosystems, to provide more comprehensive insights into the application of the eco-PjBL model.

Keywords:

Perception, Ecology; Project-Based Learning; Tuban Coast

A. INTRODUCTION

The global community is currently facing increasingly complex environmental challenges, requiring the younger generation to possess environmental literacy and the ability to take action for sustainability. Enhancing environmental literacy (knowledge, attitudes, and behaviors that care for the environment) has become a global educational priority. Educational institutions, including Madrasah Ibtidaiyah (MI), have a vital role in instilling religious values and concern for nature from an early age. Research shows that this ability is very important in preparing students to face contemporary ecological issues (Lestari et al., 2025).

The coastal environment offers a rich and authentic natural laboratory for integrating science, values, and practical skills. Therefore, Madrasah Ibtidaiyah located in coastal areas have the potential to develop contextual learning with unique natural resources and environmental issues (mangrove ecosystems, marine debris, maritime culture, etc.). Contextual learning that utilizes the students' surrounding environment (such as mangrove ecosystems) has been proven to improve conceptual understanding and foster a sense of ownership and responsibility among students towards their living environment (Fidawati et al., 2025; Nabila et al., 2025).

Education in the 21st century requires students to be active, creative, critical thinkers, and collaborative. In this case, educators are also required to improve their competence as facilitators in learning. Relevant to this, the Project Based Learning (PjBL) model is known to be effective in encouraging students to be active, creative, and improve their problem-solving skills through real projects (Hanipah & Rediani, 2024; Minarni et al., 2025). When further linked to the previous description, the modification of PjBL into Eco-PjBL based on coastal areas is able to bridge the needs of environmental education with an innovative pedagogical approach (B et al., 2023). Eco-PjBL emphasizes projects that focus on ecological issues and encourages students to produce environmentally friendly solutions, in line with the concepts of the Green Economy and sustainable development (Indra & Eliza, 2024; Nisa et al., 2024). Additionally, the application of PjBL with the eco-green concept can enhance student creativity and solve real environmental problems, such as waste utilization (Phelia et al., 2021).

The benefits offered by the Eco-PjBL model are considered quite promising. For example, a study on the application of PjBL found that this model was able to increase environmental awareness in early childhood, but its effectiveness in the long term and in different contexts still requires further research (Indra & Eliza, 2024). However, the success of implementing this innovative learning model greatly depends on its acceptance and implementation by the main subjects in the field. In the case of coastal-based Eco-PjBL, teachers act as both designers and facilitators of learning. Meanwhile, students in this case are more like the main actors in the learning activities carried out. Teachers' understanding, challenges, and views of this model need to be revealed to identify readiness and obstacles in the implementation of eco-PjBL. On the other hand, students' experiences and views will provide an overview of the level of engagement, motivation, and meaningfulness of learning. Therefore, it is necessary to know how teachers and students perception about the implementation of this model as a foundation for improving learning design in the future.

Previous research on the analysis of teachers' and students' perceptions of the eco-pjbl model has been conducted several times. In a study on the effectiveness of PjBL-based Mangrove Ecotourism Science LKPD, high school teachers and students showed positive perceptions of the LKPD implemented through the PjBL model (Dewi et al., 2024). Another similar study on the Application of PjBL in the Department of Agricultural Technology and Agricultural Product Processing also showed positive perceptions from teachers, especially in terms of understanding, readiness, and effectiveness of implementation. Meanwhile, from the students' perspective, there was positive acceptance in terms of involvement, understanding, and the development of critical thinking skills. However, several challenges, such as difficulties in working together in groups and limited resources, still need to be addressed (Saphira et al., 2025).

Previous studies on teachers' and students' perceptions of the implementation of eco-PjBL learning have not been conducted at the elementary education level, especially in coastal areas. In line with the novelty it offers, the objective of this research are to measure how Madrasah Ibtidaiyah teachers and students perception about the implementation of eco-PjBL model at coastal area school-based. The results of this study are expected to provide new findings and insights into optimizing the implementation of the eco-PjBL model in primary education, especially in coastal areas.

B. METHODS

This present study employs a qualitative approach with a descriptive research design. It utilizes in-depth field data on the perceptions of teachers and students at Islamic elementary schools regarding the implementation of the Eco-Project Based Learning (Eco-PjBL) model, which utilizes the potential of the Tuban coastal area as a learning context. The criteria for selecting the research location were Madrasah Ibtidaiyah (MI) in the Tuban Regency area, which is close to the coastal area and has implemented eco-PjBL learning. The location and research subjects were determined purposively.

The main informants in this study were teachers and students at MI who implemented Eco-PjBL learning. Data were collected through several techniques to achieve data validity and

completeness, including:

Table 1. Data Collection Techniques and Instrument

Data Collection Techniques	Instrument	Data Obtained
In-depth Interviews	Interview Guidelines (for Teachers and Students)	Teachers' and students' perceptions, experiences, challenges, and obstacles related to the implementation of Eco-PjBL.
Participatory Observation	Field Observation Sheet	Conditions of Eco-PjBL implementation, as well as teacher-student interactions.
Documentation	Field Notes, Photos, Videos, and Lesson Plans.	Physical evidence and supporting materials for the Eco-PjBL learning process.

Data analysis techniques were conducted continuously from the time the data was collected until the research was completed. The analysis model used was Miles and Huberman's interactive model, which consists of three stages: data reduction; data presentation; and drawing conclusions. Data validity (credibility) was tested through triangulation of sources and techniques.

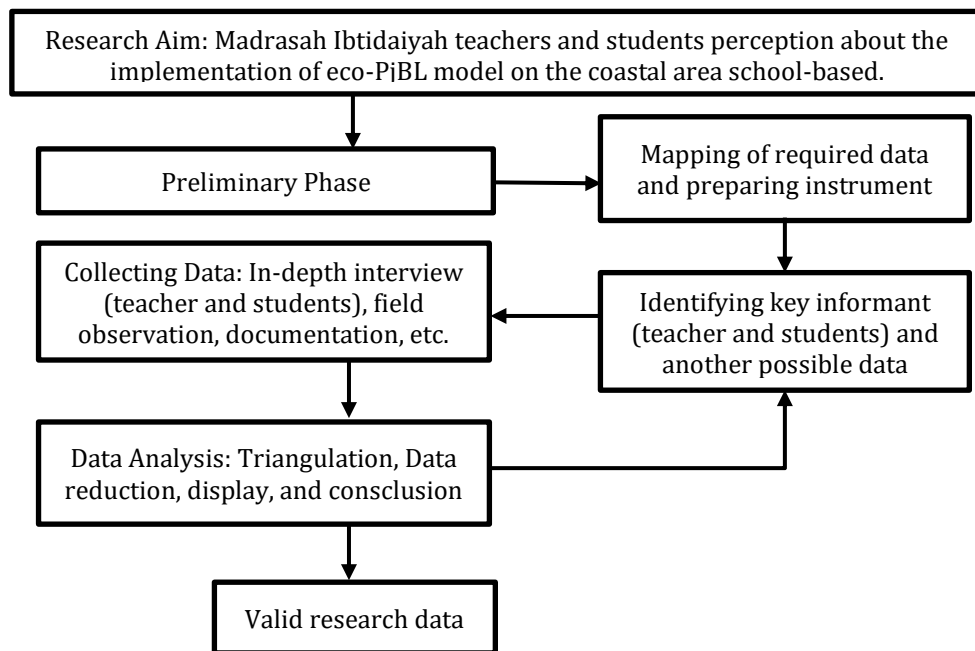


Figure 1. Qualitative research flow

C. RESULT & DISCUSSION

This Research was conducted during August-October 2025 at MI Al Musthofawiyah Palang Tuban, which is known to be close to the coastal area and has implemented eco-PjBL learning. Data collection in this research involved the participation of the research team and 5 teachers and 4 students from 4th and 5th Grade on this school. This study aims to describe the perceptions of teachers and students at the school regarding the implementation of coastal area-based eco-PjBL learning. The description of the research data results can be explained in the section below.

Teachers' Perceptions Regarding the Implementation of Coastal Area-Based Eco-PjBL Learning

The results of interviews and observations of several teachers at MI Al Musthofawiyah Palang regarding eco-PjBL learning showed several findings. Based on the results of interviews with five classroom teachers, two of them had implemented the eco-PjBL model, namely the fourth and fifth grade teachers.

"I have implemented PjBL several times, especially during learning outside of school. Usually, we invite several students from grades V and VI."

When confirmed, the grade V teacher also showed learning planning documents that had used eco-PjBL.

Rencana Pelaksanaan Pembelajaran (RPP)		
A. Identitas Program		
Satuan Pendidikan	MI Al Musthofawiyah Palang	
Kelas/Semester	V (Lima) / I (Ganjil)	
Tema	Lingkungan Pesisir dan Kelestarian Alam	
Subtema	Mandiri dan Upaya Pelestarian Lingkungan Pesisir	
Muatan Tematik	Bahasa Indonesia, IPA, SBdP	
Model Pembelajaran	Eco-PjBL (Project Based Learning Berbasis Lingkungan)	
Alokasi Waktu	3 x 35 Menit (Dapat disesuaikan)	
B. Tujuan Pembelajaran		
Setelah mengikuti kegiatan pembelajaran dengan model Eco-PjBL, siswa diharapkan mampu:		
<ol style="list-style-type: none"> Mengidentifikasi karakteristik, sumber daya, dan pekerjaan masyarakat di lingkungan pesisir dengan tepat. (IPA) Menyimpulkan informasi penting dari teks nonfiksi tentang lingkungan pesisir dengan benar. (Bahasa Indonesia) Merencanakan dan membuat proyek poster ramah lingkungan yang berkaitan dengan isu atau sumber daya lingkungan pesisir. (SBdP, IPA) Menumbuhkan sikap peduli, kerja sama, dan tanggung jawab terhadap kelestarian lingkungan pesisir. (Sikap) 		
C. Kegiatan Pembelajaran		
Model Eco-PjBL memiliki sintaks dasar PjBL yang diintegrasikan dengan isu dan aksi lingkungan (Eco).		
Tahap/Sintaks PjBL	Deskripsi Kegiatan Guru dan Siswa	Alokasi Waktu
Pendahuluan	<ol style="list-style-type: none"> Orientasi: Guru memberi salam, berdo'a, dan mengecek kehadiran. Apersepsi: Guru menampilkan gambar atau video singkat tentang keadaan dan permasalahan di lingkungan pesisir (misalnya: sampah, abrasi). 	10 Menit
1. Pertanyaan Mendasar	<ol style="list-style-type: none"> Guru mengajukan "Pertanyaan Esensial" atau tantangan, misalnya: "Bagaimana cara kita sebagai siswa Kelas V ikut menjaga keindahan dan kelestarian lingkungan pesisir dari sampah plastik, serta memanfaatkan sumber daya alamnya secara bijak?" Siswa didorong untuk mengemukakan ide awal. 	15 Menit
D. Penilaian (Assesmen)		
Aspek Penilaian Sikap (Peduli Lingkungan, Kerja Sama, Tanggung Jawab)	Teknik Penilaian Observasi (Saat diskusi dan pelaksanaan proyek)	Instrumen Lembar Observasi (Skala Penilaian)
Pengetahuan (IPA & Bahasa Indonesia)	Tes Tertulis (Post-Test)	Quiz dan tanya jawab (Karakteristik pesisir & Informasi teks)
2. Mendesain Perencanaan Proyek	<ol style="list-style-type: none"> Siswa dibagi dalam kelompok (4-5 orang) Penentuan Proyek Poster Ramah Lingkungan: Kelompok berdiskusi dan memilih satu ide proyek Poster Ramah Lingkungan yang relevan dengan lingkungan pesisir. Guru memfasilitasi setiap kelompok menaungi rencana kerja, alat, dan bahan. 	25 Menit
3. Menyusun Jadwal	<ol style="list-style-type: none"> Siswa membuat <i>timeline</i> atau jadwal penyelesaian proyek, termasuk pembagian tugas dan target waktu. Guru memberikan bimbingan saat pengumpulan/presentasi produk. 	10 Menit
4. Memonitor Pelaksanaan Proyek	<ol style="list-style-type: none"> Pelaksanaan Proyek (Aksi): Siswa mulai melaksanakan kegiatan pengumpulan sampah di area pantai dan mengamati keadaan di sekitar sebagai bahan penyusunan proyek Poster Ramah Lingkungan. Pemantauan (Monitoring): Guru memantau kemajuan proyek, memberikan bimbingan, dan melakukan penilaian proses (observasi sikap dan keterampilan). Pengumpulan Data: Siswa membaca teks nonfiksi tentang lingkungan pesisir dan mencari informasi penting yang mendukung proyek mereka. (Bahasa Indonesia & IPA) 	40 Menit
5. Menguji Hasil	<ol style="list-style-type: none"> Presentasi: Setiap kelompok mempresentasikan Poster Ramah Lingkungan yang telah dibuat, menjelaskan alasan pembuatan dan makna dari poster yang dibuat, serta manfaatnya untuk lingkungan pesisir. Kelompok lain memberikan tanggapan/masukan. 	25 Menit
6. Evaluasi Pengalaman	<ol style="list-style-type: none"> Refleksi: Guru dan siswa merefleksikan seluruh kegiatan, kesulitan yang dihadapi, solusi, dan bagaimana proyek ini meningkatkan kesadaran terhadap kelestarian lingkungan. Evaluasi Pengetahuan: Siswa mengerjakan soal evaluasi terkait materi sumber daya alam dan pelestarian lingkungan pesisir secara individu. 	10 Menit
Penutup	<ol style="list-style-type: none"> Guru memberikan penguatan tentang pentingnya aksi nyata dan tanggung jawab menjaga lingkungan. Menyimpulkan pembelajaran. Berdoa dan salam penutup. 	5 Menit

Figure 2. Lesson Plan of Fifth Grade Class

Meanwhile, teachers who have not implemented the eco-PjBL model argue that the biggest obstacle to implementing eco-PjBL stems from classroom conditions.

"Students in grades I and II are quite difficult to manage, especially when learning takes place outside of school. Their focus and attention are easily distracted, so instructions from teachers are often ignored."

According to teacher, the eco-PjBL model is usually implemented directly on the beach, as it is only about 100 meters away from the school. In terms of preparation, the fifth-grade teacher explained several things that must be prepared before conducting the lesson, including materials and supporting equipment. Meanwhile, the fourth-grade teacher added,

"In addition to preparing materials and supporting equipment, the condition of the students and the learning location also need to be considered because the learning is conducted outside of school."

This was also confirmed by the results of field observations, which showed that the eco-PjBL learning conducted in the coastal area was in accordance with the lesson plan document obtained by the researcher.



Figure 3. Implementation of the eco-PjBL model in Tuban coastal areas

In the next interview session, it was conveyed that teachers believed that the application of the eco-PjBL model was suitable for training students' independence and collaboration. In addition, this learning method was also suitable for fostering a sense of responsibility in students towards their living environment. The fifth-grade teacher also added that,

“from project learning activities carried out directly on the beach, students learned about environmental preservation responsibilities and the impact of not taking care of the environment.”

Relevant to this information, other research results also explain that the application of PjBL through the utilization of marine ecosystems has been proven to make students more active and enthusiastic in learning through learning activities such as discussions, quizzes, and group assignments (Nabila et al., 2025). In addition, learning does not only focus on academic results, but also instills values of environmental awareness (Dewi et al., 2024; Fidawati et al., 2025).

The implementation of the eco-PjBL model for MI students in coastal areas is not without challenges and obstacles. Interviews with fourth-grade teachers revealed that designing eco-PjBL learning requires extra effort. In addition to adapting to the students' surroundings, teachers are also required to adapt to appropriate learning material themes. The teacher also added that not all material can be taught through project-based learning.

Meanwhile, fifth-grade teachers also confirmed this information,

“Although the benefits and impacts are significant, project-based learning conducted outside of school has many obstacles, such as the complexity of planning, the lengthy implementation process, and the need to repeatedly maintain student focus.”

These findings are relevant to other research results that most teachers face challenges when implementing PjBL learning in the form of resources and classroom and time management (Aisyah & Novita, 2025; Saphira et al., 2025). In this case, a clear shift in the role of educators to

learning facilitators can be observed, requiring teachers to be able to manage situations, large numbers of students, and student activities in learning (B et al., 2023).

Students' Perceptions of Eco-Pjbl Learning Implementation Based on Coastal Areas

Student perception data collected through a series of interview sessions revealed several findings. Based on interviews with fourth-grade students, they enjoyed eco-PjBL learning activities. However, they felt that these activities did not increase their understanding of the material as much as learning activities carried out in the classroom. This is certainly different from the results of eco-PjBL implementation at higher education levels, which showed an increase in conceptual understanding after the implementation of project-based learning (Putra et al., 2024; Saphira et al., 2025).

The results of an in-depth interview with another fourth-grade student added, *“Learning outside of school provides a new atmosphere, so we don't get bored or sleepy. Here, we are assigned to work in groups, and the tasks are similar to our daily lives, such as disposing of trash in its proper place and making posters to encourage people to protect the environment.”*

These findings are considered relevant to previous research results that in the implementation of the PjBL learning model, students feel motivated to learn because the projects are more interesting and relevant to their daily lives (Hanipah & Rediani, 2024).

From the students' perspective, some of them complained about the division of groups. One fifth-grade student explained that he felt uncomfortable with his group, which led to differences of opinion during discussions. However, this is considered normal in group-based learning. In fact, differences of opinion in group discussions can train conflict management within the group. The results of field observations when the learning was carried out showed that the majority of student groups were able to collaborate well to complete the assignments.



Figure 3. Strengthening students' collaboration skills through the eco-PjBL model

This is also relevant and demonstrated in previous studies, where these learning conditions increase students' sense of ownership of the learning process, support collaboration, and enable meaningful contextualization (Minarni et al., 2025).

In terms of the challenges and obstacles in implementing the eco-PjBL model, fifth-grade students found it difficult to understand the teacher's instructions and relate theory to practice in the field. Several times, students also appeared confused, as described by another fifth-grade student,

"Because we were at the beach, sometimes the teacher's voice was not clearly audible and confusing. Several times our group made mistakes in doing the assignment."

Other studies conducted at higher levels also experienced similar issues, where students encountered difficulties in linking theory and practice in environment-based project learning (Lenggogeni & Mawardi, 2022; Vaz et al., 2025).

Based on the data collected, this study found differences and similarities perceptions of teachers and students regarding the implementation of the eco-PjBL learning model at MI Al Musthofawiyah Palang.

Table 2. Summary of Teacher and Student Perceptions on implementation of the eco-PjBL Learning

Perspective	Benefits for Students	Teachers-Students Interaction	Challenges
Teachers	<ol style="list-style-type: none"> 1. Suitable for training students' independence and collaboration. 2. Fostering a sense of responsibility in students towards their living environment 	<ol style="list-style-type: none"> 1. Teacher need to repeatedly maintain student focus and attention are easily distracted 	<ol style="list-style-type: none"> 1. Complexity of learning plan. 2. Time management 3. Need extra efforts to manage out school situations with large numbers of students.
Students	<ol style="list-style-type: none"> 1. Students feel motivated to learn 2. Students enthusiastic to learn projects are more interesting and relevant to their daily lives. 	<ol style="list-style-type: none"> 1. Student need clarity of teacher voice while giving instruction. 	<ol style="list-style-type: none"> 1. Uncomfortable grouping scheme. 2. Difficult understanding teacher's instructions and relate theory to practice in the field

The data above explains that teacher and student has different perceptions regarding the benefits of eco-PjBL learning: teachers think that dividing students into random groups is a good way to encourage them to work together. However, students say that they do not like this system and would rather be put into groups only with their close friends. In line with that, the requirement for PjBL is for a good spread of students based on their individual skills. For successful completion of projects, there is a need for groups with members who share the same strengths (Nand et al., 2018). Likewise, a similar perception of the challenges faced while interacting during the learning eco-PjBL process is also stated by teachers and students. Teachers believe that eco-PjBL learning in coastal areas requires extra effort to manage large numbers of students outside of school. Students also agree that they find it difficult to understand the teacher's instructions because they are not loud or clear enough. These findings are relevant to previous research which explains that, when implementing PjBL, teachers should provide structured written guidelines rather than verbal instructions, which can lead to misunderstandings among students (Minarni et al., 2025).

Project-based learning activities outside of school, while offering many potentials, also require extra preparation from the accompanying teachers because unpredictable variables can influence the surrounding situation and conditions. Additionally, improvements based on the perceptions of teachers and students like this need to be carried out continuously to achieve more

optimal results.

D. CONCLUSION

The implementation of the coastal area-based eco-PjBL model has revealed many potentials, challenges, and obstacles identified from the perceptions of teachers and students at MI Al Musthofawiyah Palang. Based on their learning experiences, teacher and students has difference perception on grouping scheme while implementing eco-PjBL. Otherwise, a similar perception of the challenges faced while interacting during the learning eco-PjBL process.

The results of this study are expected to have an impact, especially for educators, to better understand the students' perspective in optimizing the implementation of the coastal area-based eco-PjBL model. This is in line with the role of teachers in the 21st century as the main facilitators in a student-centered learning paradigm. However, this study was limited to the elementary school level, particularly upper grades. In the future, similar studies need to be conducted at the same level and below, especially in more diverse ecosystems. R&D Research to develop Eco-PjBL modules based on coastal areas is also highly recommended to provide a more comprehensive insight into the application of the eco-PjBL model.

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