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IMPROVING THE PROCESS AND OUTCOMES OF SCIENCE LEARNING IN GRADE VI USING THE INQUIRY METHOD AT STATE ELEMENTARY SCHOOL 178/II PURWASARI

Erwindy Nurmeita Sari [1a] , Subhanadri [2b] , Apdoludin [3c]

[123] Muhammadiyah University of Muara Bungo, Indonesia

1 [a] erwindynurmeita@gmail.com
[2b] inet.subhanadri@gmail.com
[3c] apdoludinstkipmb@gmail.com

(*) Corresponding Author
erwindynurmeita@gmail.com

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ABSTRACT
This study aims to improve the process and learning outcomes of Natural and Social Sciences (IPAS) through the application of inquiry learning methods to sixth grade students of SD Negeri 178/II Purwasari in the 2024/2025 academic year. The background of this study is the low student engagement and the results of learning in IPAS that have not yet reached the Learning Objectives Achievement Criteria (KKTP). The study uses a Classroom Action Research (CAR) approach which is implemented in two cycles, each consisting of two meetings with a duration of 2 × 35 minutes. The subjects of the study were 21 students, consisting of 10 male students and 11 female students. Data were collected through teacher performance observation sheets, student activity observation sheets, and cognitive learning outcome tests, then analyzed descriptively quantitatively. The results of the study showed a significant increase in each observed aspect. Teacher performance increased from 57.5% in the first cycle of the first meeting to 72.5% in the second meeting, and in the second cycle it increased to 75% in the first meeting and 85% in the second meeting. Student activity increased from 52.5% in the first meeting of cycle I to 61.9% in the second meeting, and in cycle II it reached 73.7% in the first meeting and 88.7% in the second meeting. The completion of cognitive learning outcomes also increased from 57.1% (12 students) in cycle I to 90.5% (19 students) in cycle II. These results prove that the application of the inquiry method is effective in increasing student engagement and science learning outcomes, and successfully meets the established success indicators.

INTRODUCTIONS

Education plays a vital role in every human being's life. Through education, a person can be guided towards a better life (Iqbal et al. 2024) . The education undertaken is also expected to transform an individual's behavior and attitudes for the better and become more mature. In the world of education, the learning process begins at the elementary level. Based on Article 17 Paragraph 1 of Law Number 20 of 2003, elementary education is the initial foundation that prepares students to continue to secondary education. The implementation of learning in elementary

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schools must be directed towards achieving the objectives of tiered education, from elementary school to tertiary level. This learning stage serves as the foundation for instilling various basic abilities, such as intelligence, knowledge, personality development, character, and basic skills that are useful in everyday life, as well as providing provisions for continuing studies to a higher level. Meanwhile, Article 1 point 19 of Law Number 20 of 2003 explains that the curriculum is a set of plans and arrangements regarding objectives, content, learning materials, and methods used as a guide to achieve specific educational goals. Thus, the curriculum has an important and strategic role in the implementation of education (Irawan 2023) .

The latest improvement of the curriculum is the Independent Curriculum, which offers intracurricular learning with a more optimal variety of materials, so that students have sufficient time to deepen concepts and strengthen their abilities (Yulius and Zainil 2025) . Educators are given the freedom to choose and utilize teaching tools so that the learning process can be tailored to students' interests and needs. At the elementary/Islamic elementary school (SD/MI) level, the Independent Curriculum focuses on the implementation of project-based learning designed to develop the Pancasila Student Profile (Fatma Sari et al. 2024) . This approach aligns with the demands of 21st-century education, which emphasizes equipping students with skills to face diverse future challenges. To support the achievement of educational goals, SD Negeri 178/II Purwasari implements the Independent Curriculum as the primary guideline in the learning process.

In the Independent Curriculum, science and social studies subjects are integrated into a single field of study called Natural and Social Sciences (IPAS) (Rosiyani et al. 2024) . This subject combines discussions of living and nonliving things in the universe and their interactions, while simultaneously studying human life as both individuals and as social beings. This integration aims to enable students to study natural and social aspects in an integrated manner, recognize Indonesia's natural wealth, understand current problems, and strive to preserve and develop existing potential. The Independent Curriculum emphasizes that the goal of education is not solely to enhance intellectual intelligence, but also to provide balanced attention to the development of spiritual and emotional intelligence (Azhar et al. 2024) . The success of this curriculum's implementation can be seen in the improvement in student achievement, both in academic and non-academic aspects.

Natural and Social Sciences (IPAS) learning at the elementary school level should be systematically designed to create a conducive, enjoyable learning environment that encourages two-way interaction between teachers and students (Yasmini 2022) . The learning process should not only focus on one-way delivery of material but also provide ample opportunities for students to actively engage. This engagement can be realized through various activities that stimulate curiosity and critical thinking skills, such as simple experiments relevant to everyday life, group discussions that facilitate the exchange of ideas, and collaborative projects that foster cooperation, responsibility, and effective communication. This approach is expected to strengthen conceptual understanding, increase learning motivation, and equip students with essential 21st-century skills. This approach allows students to connect learning materials to everyday experiences, strengthen understanding of basic concepts, and develop critical and creative thinking skills. Assessment should not only take the form of written tests but also involve projects or performance assessments that measure skills comprehensively (Widiya and Radia 2023) .

However, based on observations on July 22–23, 2025, in grade VI of SD Negeri 178/II Purwasari, science learning was still conducted using a conventional, teacher-centered approach. In the learning process, teachers tended to dominate activities by delivering material orally, while students acted as passive listeners without adequate opportunities to actively engage in learning activities. This condition resulted in minimal two-way interaction between teachers and students, so that students' potential to develop critical, creative, and collaborative thinking skills was not optimally facilitated. This resulted in minimal teacher-student interaction, and caused students to have difficulty understanding the material because they lacked opportunities to ask questions, discuss, or engage in meaningful learning activities. When the teacher asked questions, only about 5–6 students out of 21 actively answered, while the others tended to be passive and waited for the teacher's explanation.

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This situation resulted in the failure to achieve the learning objectives of the Social Sciences (IPAS) as outlined in the Independent Curriculum. Low student engagement also impacted cognitive learning outcomes. Data showed that the average cognitive learning outcomes for the IPAS subjects were relatively low. Of the 21 students, only eight met the Learning Objective Achievement Criteria (KKTP), while the remaining 13 students failed to meet the established standard. The school's KKTP score limit is 70, so the number of students meeting the criteria is significantly lower than those failing to meet it.

RESEARCH METHOD

This study used a Classroom Action Research (CAR) design that focuses on efforts to improve the quality of the learning process. CAR is a form of reflective study conducted by educators or action actors with the aim of developing rational thinking skills regarding the steps taken in learning, while simultaneously improving conditions that influence these learning practices (Hermina 2025) . Through this approach, teachers can systematically identify problems, develop action plans, implement those plans, and evaluate the results to create more effective and meaningful learning for students. The selection of SD Negeri 178/II Purwasari as the research location was based on initial observations that showed low achievement of science learning outcomes and minimal active student involvement in the learning process. This research was conducted in the 2024–2025 academic year and was designed in two learning cycles. Each cycle consists of stages of planning, action implementation, observation, and reflection that are interconnected, so that improvements can be made continuously until learning objectives are optimally achieved (Widiya and Radia 2023) .

The implementation of cycle I consisted of two meetings with a duration of 2 x 35 minutes each. Cycle II was held with the same number of meetings and time allocation. The research subjects involved 21 sixth-grade students of SD Negeri 178/II Purwasari, consisting of 12 male students and 9 female students. The focus of the research was directed at sixth-grade science learning with the material Chapter 2 "How Our Bodies Move." The entire learning process on the material was designed and implemented using the inquiry learning method, which aims to increase active student participation while optimizing their learning outcomes.

Data collection in this study was conducted through three techniques: tests, observation, and documentation. The research instruments used included teacher observation sheets, student observation sheets, and learning outcome tests compiled based on the established Learning Outcomes (CP) and Learning Objectives (TP). (Suardin et al. 2023) Tests serve to assess the development of students' cognitive abilities, while observation sheets are used to monitor the level of student engagement, attitudes, and performance during the learning process. Meanwhile, documentation techniques are used to record the learning process through taking photographs and recording field findings.

RESULTS AND DISCUSSIONS

This classroom action research was conducted on sixth-grade students of SD Negeri 178/II Purwasari in the 2024/2025 academic year using an inquiry-based learning model in Natural and Social Sciences (IPAS). The research activities were carried out in two cycles, where each cycle consisted of two meetings with a time allocation of 2 x 35 minutes each. The research instruments used included teacher performance observation sheets, student activity observation sheets, and learning outcome tests focused on cognitive aspects.

Teacher Performance Observation Results

Tabel 1. Hasil kinerja guru

Siklus	Rata-rata persentase
Siklus I pertemuan I	57,5 %
Siklus I pertemuan II	72,5 %
Siklus II pertemuan I	75%
Siklus II pertemuan II	85%

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Based on the data in the previous table, there is an improvement in teacher performance from cycle I to cycle II. In cycle I, the percentage of teacher performance achievement reached 57.5% in the first meeting and increased to 72.5% in the second meeting. Meanwhile, in cycle II, there was a further increase, reaching 75% in the first meeting and reaching 85% in the second meeting. This improvement indicates that teachers are increasingly skilled in implementing inquiry learning steps, managing the classroom, providing guidance, and creating a conducive learning atmosphere. This improvement also indicates that teachers have adapted to the learning model used, so that learning steps can be implemented more effectively.

Student Activity Observation Results

Table . Student Activity Results

Siklus	Rata-rata persentase
Siklus I pertemuan I	52,5 %
Siklus I pertemuan II	61,9 %
Siklus II pertemuan I	73,7 %
Siklus II pertemuan II	88,7 %

Student activity showed a significant increase from cycle I to cycle II. In cycle I, the percentage of student engagement was recorded at 52.5% in the first meeting and increased to 61.9% in the second meeting. A higher increase was seen in cycle II, with student engagement reaching 73.7% in the first meeting and increasing again to 88.7% in the second meeting. This increase occurred because the application of the inquiry method provided space and opportunities that encouraged students to play an active role and contribute optimally to learning activities such as asking questions, making observations, working on group assignments, and expressing opinions in discussions. Students became more confident in expressing their opinions and actively participating in the learning process.

Students' Cognitive Learning Outcomes

Table 3. Students' Cognitive Learning Outcomes

Implementation	Percentage	
	Completed	Not Completed
Cycle I	57.1%	42.9%
Cycle II	90.5%	9.05%

Based on the test results in cycle I, there were 12 students (57.1%) who achieved learning completion with an average score of 67.6 and the highest score of 80, while 9 students (42.9%) did not meet the KKTP limit of 70. In cycle II, the number of students who completed increased to 19 people (90.5%) with an average score of 73.5 and the highest score of 90, while only 2 students (9.5%) did not complete. The improvement in learning outcomes indicates that the application of inquiry learning is able to help students understand the material "How Our Bodies Move" in more depth. Through structured activities, students are given the opportunity to discover knowledge independently, so that their understanding of concepts becomes more optimal. Improvements that occur in teacher performance, student activities, and cognitive learning outcomes prove that the inquiry learning model is effective in improving the quality of science learning. Teachers can adjust the steps of inquiry learning well so that they can facilitate students optimally. Meanwhile, student learning activities increase because this model encourages active involvement, group collaboration, and critical thinking skills.

The research results also met the established success indicators, namely the learning process reached ≥75% in the good category and the classical cognitive learning completion reached ≥70%. These findings align with the opinion of (Kurniawati et al. 2025) who stated that inquiry learning can foster curiosity, hone critical thinking skills, and strengthen conceptual understanding. Furthermore, the results of this study support the findings of Yuliani (2020) who revealed that active student involvement in learning has a positive effect on learning outcomes. Thus, inquiry learning

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is worthy of being used as an alternative active learning strategy in elementary schools, especially in science subjects, to improve student learning processes and outcomes.

CONCLUSION

The application of the inquiry learning model has proven effective in improving the quality of the science learning process for sixth-grade students of SD Negeri 178/II Purwasari. This improvement can be seen in the results of teacher and student observation sheets from Cycle I to Cycle II. Based on teacher observations, the learning process in the first meeting of Cycle I reached 57.5% and increased to 72.5% in the second meeting. In Cycle II, the percentage increased to 75% in the first meeting and reached 85% in the second meeting. Meanwhile, based on student observations, their involvement in the first meeting of Cycle I was 52.5%, increased to 61.9% in the second meeting, then increased to 73.7% in the first meeting of Cycle II, and reached 88.7% in the second meeting.

In addition to improving the learning process, the inquiry method also has a positive impact on students' cognitive learning outcomes. Test results showed that in Cycle I, 12 students (57.1%) achieved mastery, while in Cycle II, this number increased to 19 students (90.5%). This means there was a 33.4% increase in learning mastery from Cycle I to Cycle II. Through this classroom action research, learning obstacles, both in terms of process and results, can be minimized, so that the implementation of learning becomes more effective and meets the predetermined success indicators.

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