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Mini Research Learning on Ecosystem Material Based Semarang Local Potential Towards Critical Thinking and Environmental Awareness Among Elementary School Student

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Abstract

This study aims to analyze the Critical Thinking and Environmental Awareness Among Elementary School Student through mini research learning on Ecosystem material, utilizing Semarang's local potential. The research method employed is qualitative with descriptive qualitative analysis. The subjects of the study were Phase C students from Grade 6 at elementary school (SD) Nongkosawit 01 and SD Islam Bintang Juara, located in Gunungpati, Semarang City. Mini research learning is a teaching method that guides students in conducting scientific processes. This approach leverages Semarang's local potential, specifically the Tapak Mangrove Forest in Tugurejo, Semarang City, allowing students to learn about the Ecosystem material more contextually and concretely. Ecosystem material is one of the essential topics in the curriculum. The study assessed two main student character traits: critical reasoning and environmental awareness. The analysis of critical reasoning, based on the LKPD assessment and N-gain scores, showed good results. Similarly, environmental awareness, as measured by a questionnaire, indicated that 79.64% of students demonstrated strong character in this area. Based on the findings, mini research learning that incorporates Semarang's local potential is effective in fostering critical reasoning and environmental awareness among elementary school students.

How to Cite

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INTRODUCTION

The "Kurikulum Merdeka" is a curriculum that provides flexibility and focuses on essential materials to develop students' competencies as lifelong learners with Pancasila values (Kemdikbudristek, 2024). One of the foundations of the Kurikulum Merdeka is psychopedagogical principles, aimed at ensuring that learning experiences are tailored to the needs and capacities of students, or in other words, that the learning process is student-centered (Kemdikbudristek, 2024). The paradigm of student-centered learning can be implemented, among other approaches, through research-based learning (Anwarudin et al (2022).

Mini-research-based learning is an approach that uses problems as a starting point to gather and process information obtained directly through observation (Setiawan, 2022). Aligning with this statement, Wardani & Kurnia (2019) and Leksono, (2020) suggest that problems found in the surrounding environment can serve as an initial step to collect and process the desired information in mini-research-based learning. This approach encompasses cognitive, affective, and psychomotor domains, which can enhance process skills Saimroh et al., (2021). According to Daulae at al., (2017) and Sisri (2022), mini-research-based learning can improve learning outcomes, change attitudes, develop skills, instill values, and influence behavior and beliefs about nature.

Findings from previous research indicate that the stages of the mini-research learning process begin with formulating fundamental questions, designing project plans, creating activity schedules, monitoring progress, testing results, and concluding with summarizing and evaluating. These steps can equip students with the skills to analyze problems (Permari, 2016 and Leksono et al., 2020). Issues or cases found in the environment can be utilized as learning resources to encourage student participation during the learning process (Leksono et al., 2020).

Permari, (2016) and Leksono, et al. (2020) found in their research that in the stages of mini-research, students independently carry out the steps of planning, implementation, and reporting. Through these stages, students can connect what they learn and their experiences with issues in their surrounding environment (Wardani dan Feni, (2019). Mini-research learning for elementary school students can be facilitated through Student Worksheets (LKPD) prepared by teachers. The worksheets are completed in groups of four to six students, arranged homogeneously to obtain diverse data during the mini-research process. The LKPD guides students in determining observation topics, observation objectives, problem statements to be solved, and titles for their observations. Additionally, the LKPD includes the preparation of schedules, steps, and necessary tools/materials for the mini-research. The process concludes with a simple report on the findings and an assessment that complements the ecosystem concept through analytical questions based on the observations.

In this study, mini-research-based learning is used to deliver material on ecosystems at the elementary school level. Ecosystem material at the elementary level is part of the Natural and Social Sciences (IPAS) subject in Phase C. According to the decision of the "Badan Standar, Kurikulum, dan Asesmen Pendidikan" (BSKAP) Number 032/H/KR/2024, (BSKAP, 2024) IPAS consists of two elements: the element of scientific and social understanding and the element of process skills. Both elements are integral to IPAS from Phase B to Phase C. In Phase C, ecosystem material includes topics such as the definition of ecosystems, components of ecosystems, types of ecosystems, and their relationships with life, including the environment, culture, and society. Due to the essential nature of the ecosystem material, it needs to be taught using meaningful methods that encourage active student participation, such as mini-research. In this study, mini-research will utilize local potential available in the city of Semarang.

Local potential refers to the specific resource potentials possessed by a region, including natural resources, human resources, technology, and culture (Hayati et al., 2019). The local potential of a region can be utilized to support the decentralization of education (Alimah, 2019). Integrating local potential into learning is a characteristic emphasized by the curriculum to make learning more practical and meaningful, thereby fostering students' collaboration and responsibility in the learning process (Hayati et al., 2019).

The city of Semarang has diverse local potentials based on its geographical location. In this study, the researcher utilized the local potential in the Tugurejo District of Semarang City. The Tugurejo area, specifically in the Tapak Village, was chosen because it offers local resources such as fish ponds, coastal areas, mangrove forests, rivers, saltwater, brackish water, and freshwater. The ecosystems present in this area align with the criteria required to achieve mastery of Natural and Social Sciences (IPAS) concepts and process skills through mini-research. The conditi-

on of the mangroves in Tapak Village, Tugurejo District, Semarang City, is currently in relatively good condition compared to other areas nearby and has a fairly extensive ecosystem (Santoso et al., 2019 & Mirza et al., 2022). According to Oktarina et al., (2015), the mangrove area in Tugurejo spans 15.05 hectares. Mirza et al., (2022) noted in their research that the mangroves in the Tapak area support biodiversity, including mangrove crabs, various types of mangrove plants, bird species, fish species, and other marine life.

The subjects of this study are elementary schools from both private and public institutions located in Gunungpati District, namely elementary school (SD) Islam Bintang Juara and SD Nongkosawit 01. SD Islam Bintang Juara is a private elementary school in Gunungpati District, offering classes from grades 1 to 6 and implementing the Kurikulum Merdeka since 2022. SD Islam Bintang Juara is a Sekolah Penggerak (Driving School) of the second cohort in Semarang City and was the only one in Gunungpati District from 2022 to 2024. The school also holds legal certification as a child-friendly school. Additionally, some students at SD Islam Bintang Juara are students with special needs. In each class, there are at least two students with different diagnoses.

SD Negeri Nongkosawit 01 is a public elementary school located in Nongkosawit Village, Gunungpati District. The school independently implements the Kurikulum Merdeka at the "ready" stage. According to the teachers, the learning activities at SD Negeri Nongkosawit 01 have developed to include differentiated learning. However, specific activities for outdoor learning are not yet scheduled regularly, so these activities are adjusted to the teaching modules prepared by the teachers. SD Negeri Nongkosawit 01 offers six grade levels, from grade 1 to grade 6. The students at this school have diverse learning achievements, characteristics, and learning styles. However, there are no students who have been formally diagnosed by psychologists or specialists, even though some students show indications of needing special assistance.

Based on the issues outlined above, it is crucial for students to develop the character traits outlined in the Pancasila Student Profile embedded within the Kurikulum Merdeka. This ensures that students' character and competencies can grow and improve. The researcher hopes that through the application of mini-research in teaching the Natural and Social Sciences (IPAS) subject on the topic of ecosystems, utilizing local potential, students can enhance their critical thinking skills and environmental awareness. These align with the dimensions of being faithful, devoted to God Almighty, and having noble character.

METHOD

The research conducted is qualitative research. Data collection was carried out using research instruments, and data analysis was inductive in nature, making this study employ a qualitative descriptive approach. The research variables include mini-research-based learning utilizing Semarang's local potential and the character traits outlined in the Pancasila Student Profile. The research data consists of the character traits in the Pancasila Student Profile. The instruments used include learning outcome tests, questionnaires, and field note sheets. The tests used in this research include a pre-test and a summative test to measure students' critical thinking skills. To calculate the test results, both the pre-test and post-test in the learning process, the percentage correction formula is used as follows:

$$S = \frac{R}{N} \, x \, 100$$

Explanation:

S : The score being calculated or expected
R : The total score from correctly answered items or questions
N : The ideal maximum score of the test
100 : A constant number

The assessment criteria for the tests can be seen in Table 1.

Table 1. Test Assessment Criteria

Average Score Range	Criteria
0-39	Very Poor
40-54	Poor
55-69	Fair
70-84	Good
85-100	Very Good

Meanwhile, to determine the improvement in learning outcomes and critical thinking skills, the analysis uses N-Gain. The normalized gain score (N-Gain) calculation, according to Hake (2002), is expressed in the following formula:

$$\text{N-gain} = \frac{skor\ postest - skor\ pretest}{100 - skor\ pretest}$$

The result of the gain score calculation is interpreted using the gain index, which is classified in Table 2.

Table 2. N-gain Criteria

Gain Score	N-gain Criteria
g < 0.30	Low
0.30 < g < 0.70	Moderate
g > 0.70	High

In addition to the assessment of learning outcomes, this study also uses a questionnaire to analyze environmental awareness character and supporting data for critical thinking. The questionnaire is intended for 6th-grade students. The questionnaire uses a Likert scale with the details as shown in Table 3.

Table 3. Likert Scale Measurement

Response	Score
Strongly Disagree (SD)	1
Disagree (D)	2
Agree (A)	3
Strongly Agree (SA)	4

The results of the questionnaire percentage calculation will be determined using the following formula:

$$\% = \frac{f}{JS} X\ 100\%$$

Explanation:
% : Percentage
f :Frequency of students responding to a question
JS : Total number of students as respondents

The calculation results of the questionnaire can be classified based on Table 4.

Table 4. Percentage Classification for Scores 3 and 4 in Questionnaire Results

Percentage	Criteria
≤ 54 %	Very Poor
55%-59%	Poor
60%-75%	Fair
76%-85%	Good
86%-100%	Very Good

The mini-research on ecosystem materials based on Semarang's local potential is considered successful if the questionnaire results achieve at least a "good" criterion, as indicated by the percentage of scores of 3 and 4 in the critical thinking and environmental care character questionnaire.

RESULT AND DISCUSSION

The Merdeka Curriculum emphasizes nation-building through character development, specifically by fostering the Pancasila Student Profile in every learner. Essentially, the Pancasila Student Profile serves as an effort to internalize Pancasila values within the learning process. Mini-research-based learning, utilizing Semarang's local potential, is one method to instill Pancasila Student Profile traits as it incorporates character-building elements. Research findings indicate that the Pancasila Student Profile traits became evident during and after the implementation of mini-research-based learning on the ecosystem topic. These observed traits include:

(a) Critical Thinking is demonstrated by students' ability to identify issues, determine research topics, formulate research questions and objectives, collect data, and process it into simple information. This is assessed through LKPD evaluations, learning outcome assessments, and supported by a student critical thinking profile questionnaire. The results of the LKPD assessment for mini-research-based learning on the ecosystem topic utilizing local potential can be seen in Table 5.

Table 5. LKPD Assessment Results for Mini-Research Learning

No	Assessment Aspects	Subject 1 Score	Subject 2 Score
1	Determining the Mini Research Topic	95.8	91.7
2	Formulating the Problem Statement	87.5	91.7
3	Defining the Objectives of the Mini Research	95.8	91.7
4	Designing Tools, Materials, and Procedures	79.2	75
5	Recording Observational Findings	75	87.5
6	Creating a Preliminary Report	75	75
Average		84.7	85.4
Category		Good	Good

Based on the assessment results from the LKPD completed by the students, they have demonstrated good critical thinking skills. In addition to the LKPD assessment, critical thinking

profiles are also measured based on the learning assessment results, which are analyzed using N-gain scores. The students' learning assessment results can be seen in Table 6.

Table 6. Student Learning Assessment Results

Description	Subject 1	Subject 2
Average Score of the Initial Test	30.5	51.8
Average Score of the Summative Assessment	79.5	88.7
Score N-Gain	0.71	0.77
Criteria	High	

Description:
Subject 1 : SDN Nongkosawait 01
Subject 2 : SD Islam Bintang Juara

Based on the student learning assessment results, there was an improvement after the mini-research learning was implemented. In addition to the learning outcomes as supporting data for the achievement of critical thinking profiles, students were also given a questionnaire to gain deeper insights into their critical thinking profiles. The results of the critical thinking questionnaire can be seen in Table 7.

Table 7. Results of the Student Critical Thinking Questionnaire

No	Aspects	Percentage	Criteria
1	Identifying Emerging Issues	90.9%	Very Good
2	Finding the Problem Topic	90.9%	Very Good
3	Formulating the Problem Statement Based on the Topic	83.6%	Good
4	Observing Carefully and Thoroughly	87.3%	Very Good
5	Entering Data as Needed	80%	Good
6	Processing Data into Useful Information, Such as Creating a Food Web	69.1%	Fair
Average Percentage		83.6%	
Criteria		Good	

The results of the Pancasila Student Profile critical thinking questionnaire indicate that, on average, students are rated as having good criteria. However, there is still a percentage of students below the average, particularly in entering data according to the requirements and processing the data into useful information. Both at SDN Nongkosawit 01 and SD Islam Bintang Juara, there are students who have not yet fully understood how to process data into meaningful information. (b) Environmental Awareness in the Dimension of Faith and Devotion to God Almighty and Noble Morality. In this profile, the focus is on understanding the relationship between nature and its Creator through environmental awareness activities. The results of student environmental awareness in the dimension of faith and devotion to God Almighty and noble morality can be seen in Table 8.

Table 8. Results of the Student Environmental Awareness Questionnaire

No	Aspects	Percentage	Criteria
1	Maintaining School Cleanliness Through Duty Rotations	92.7%	Very Good
2	Turning Off Lights/Electrical Devices When Not in Use	60%	Fair
3	Using Water Wisely	81.8%	Good
4	Disposing of Waste According to Its Type	65.5%	Fair
5	Finishing Taken Food or Bringing Personal Food and Drink Containers	98.2%	Very Good
Average Percentage		79.64%	
Criteria		Good	

The environmental awareness profile in the dimension of faith and devotion to God Almighty and noble morality is categorized as good. The very good aspect is observed in students' participation in school cleaning duties and finishing their food. The good aspects are seen in students' ability to use water wisely, while areas for improvement in environmental awareness include turning off unused electrical appliances and sorting waste according to its type.

The Independent Curriculum emphasizes efforts to shape the nation's character through the Pancasila Student Profile for every student, as stated in Permendikbudristek No. 12 Tahun

2024 (Kemendikbudristek, 2024). Essentially, the Pancasila Student Profile is an effort to internalize the values of Pancasila within the learning process (BSKAP. (2024). Mini-research-based learning, utilizing Semarang's local potential, serves as an in-depth learning method to instill the Pancasila Student Profile, as it incorporates character-building elements that align with the learning objectives (Kemdikdasmen, 2025). A person with good character is someone who can make decisions and take responsible actions, fully aware of the consequences of their choices (Anwar, 2017).

The mini-research learning approach implemented by the researcher utilizes a validated module and student worksheets (LKPD), which have been assessed with an excellent validation rating. The module content includes components for applying the Pancasila Student Profile, also validated as excellent. Additionally, it features a reflection section that provides students with the opportunity to express their feelings, understandings, challenges, and follow-up actions. The LKPD further encourages students to conduct mini-research by assessing their attitudes, skills, and knowledge in a structured manner. This allows students to carry out mini-research easily using the LKPD. Although the initial validation indicated that some sentence structures were complex, the researcher has revised them for clarity, ensuring that students can conduct contextual mini-research effectively, specifically in the Tapak, Tugurejo Mangrove Forest, Semarang.

The Pancasila Student Profile represents an effort to prepare future generations who are capable and competent in facing the evolving times, as instilled in Indonesia's primary and secondary education system (Tao, 2017). It aims to internalize the nation's philosophical values in every student (Zuchron, 2021). The Pancasila Student Profile is structured into various dimensions, which align with the 2003 National Education System Law. These dimensions include being faithful and devoted to God Almighty with noble character, teamwork, global diversity, critical reasoning, creativity, and independence (Kemdikbudristek. 2022). The internalization of the Pancasila Student Profile can be carried out through intracurricular activities (learning processes), extracurricular activities, and co-curricular activities, such as the Pancasila Student Profile Strengthening Project.

Mini-research learning is one of the methods used to enhance students' learning interest. Its principles align with deep learning, which emphasizes conscious, meaningful, and enjoyable learning experiences (Kemdikdasmen, 2025). Mini-research learning based on Semarang's local potential is also categorized as a project activity designed to instill the characteristics of the Pancasila Student Profile. This is achieved through outing class activities, which provide students with opportunities to collaborate and develop critical thinking skills Nafi', 2023).

Mini-research learning is conducted both in the classroom and through outdoor activities, commonly referred to as outing classes, which directly involve nature as a learning resource (Marudut et al., 2020). According to research by Adhani dan Nazarullai (2019), outdoor learning with a structured and well-defined concept helps train children's adherence to established rules, such as environmental conservation and teamwork within their groups. Additionally, Rabiatul, (2022) states that environment-based outdoor learning can increase students' motivation and foster a sense of environmental stewardship.

The implementation of mini-research learning on ecosystem topics, utilizing Semarang's local potential and incorporating the Pancasila Student Profile for elementary school students, follows a modified framework from Burns (2016) and Permari (2016). This framework consists of six stages: problem identification, planning steps or phases, seeking reference materials, conducting observations and data collection, preparing reports and presentations, and conducting evaluations at each stage. The evaluation process is carried out by teachers to monitor and control the implementation of the mini-research. A detailed cycle of mini-research learning based on local potential is illustrated in Figure 1.

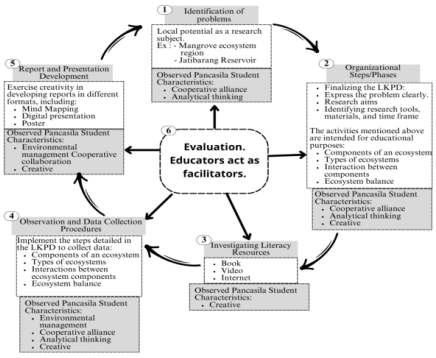

Figure 1. Mini-Research Learning Cycle Based on Local Potential

Based on the cycle above, the Pancasila Student Profile analyzed in mini-research learning based on Semarang's local potential includes critical thinking and environmental awareness, which is a sub-element of the dimension

Faith in God Almighty and Noble Character. The data analysis results on the implementation of mini-research learning based on Semarang's local potential indicate that, on average, students demonstrate good character. Several factors contribute to students developing good and excellent character, including internal and external factors that influence the learning process (Halim, 2022).

The implementation of mini-research learning on ecosystem topics for elementary school students applies the principles of deep learning, which emphasizes conscious, meaningful, and joyful learning experiences (Kemdikdasmen. (2025). Additionally, mini-research learning plays a significant role in shaping the Pancasila Student Profile, particularly in fostering critical thinking skills and environmental awareness (Halah et al., 2024).

Mini-research activities engage students in critical thinking stages, such as identifying ecosystem-related problems, collecting and analyzing data, and drawing research conclusions (Amalia, 2019). These activities sharpen students' ability to clarify, analyze, and derive conclusions based on the data they gather. For instance, students can identify the impact of environmental changes on biodiversity in their surroundings, a process that stimulates their critical thinking skills.

Mini-research in learning is a small-scale research method conducted by students to enhance research skills, critical thinking, and self-regulated learning (Efendi, 2021). Through mini-research activities, students learn to formulate research questions, collect data, analyze findings, and conclude their results. Mini-research-based learning has been proven effective in helping students gain a deeper understanding of concepts, particularly complex topics such as environmental management and biodiversity (Sawitri et al., 2024). This is evident from the significant improvement in students' learning outcomes after participating in mini-research learning.

Several studies indicate that the mini-research method increases students' interest in learning and comprehension. For example, it makes students more enthusiastic about science and provides a deeper understanding of the interconnections within ecosystems and natural balance (Efendi, 2021). By utilizing this active learning strategy, students can grasp ecosystem concepts more contextually, fostering early environmental awareness and encouraging them to think critically about solutions to environmental problems around them (Amalia, 2019).

The results of N-gain analysis and the evaluation of students' worksheet responses (LKPD) indicate that mini-research significantly enhances critical thinking skills. In the initial test, students struggled to analyze environmental issues presented in the questions. However, after participating in mini-research learning, they were able to explain phenomena and propose solutions to prevent environmental degradation. Mini-research learning, which incorporates a scientific investigation approach, supports the development of students' independent learning. For example, when constructing a food web, students review their recorded findings on biotic and abiotic components (Burns, 2016). According to Susiani et al., (2018), mini-research activities help train soft skills, critical thinking, and problem-solving abilities. Through mini-research learning, the achievement of Ilmu Pengetahuan Alam dan Sosial (IPAS) competencies, particularly in reaching the mastery of Phase C, can be well-accommodated.

In developing critical thinking skills, students at SD Negeri Nongkosawit 01 were introduced to mini-research as a completely new learning activity. As a result, they required guidance in understanding how to identify problems, design a mini-research plan, observe research objects, record data accurately, and create a simple report that includes a food web. Despite these challenges, 28 students found the activity engaging and expressed a desire to repeat and frequently conduct mini-research learning.

At SD Islam Bintang Juara, mini-research-based learning for environmental exploration was already a familiar activity. However, utilizing Semarang's local potential as a learning source was still rare. This novelty led to an increased enthusiasm among students when learning about ecosystems. Since students had prior experience in recording observational data, the researcher primarily guided them in selecting research topics that focused on ecosystems, formulating research questions, and processing data into easily understandable information.

The benefits of mini-research learning include training students to become young researchers (Ramdani et al., 2022). The stages of mini-research learning encourage students to practice identifying problems and formulating their own solutions (Hayati et al., 2019). By fostering critical thinking skills from an early age through mini-research, students—most of whom belong to Generation Alpha—are better prepared to face 21st-century challenges. This approach also shifts learning from rote memorization to more engaging and contextual activities (Sisri, 2022).

In learning about Ecosystems by utilizing Tapak Mangrove Forest, students were reminded

that the diversity of living beings is part of God's creation (Arkham et al., 2023). The mini-research approach engaged students in planning, observing, recording data, and producing a simple collaborative report. Through this process, students developed an appreciation for biodiversity and a sense of responsibility to protect nature as a form of gratitude for God's creation (Amalia, 2019). Observational and reflective discussions reinforced gratitude and environmental responsibility, aligning with the moral dimension toward nature (environmental awareness) in the Pancasila Student Profile.

Through mini-research activities, students learned about food chains, life cycles, and the interactions between biotic (living) and abiotic (non-living) components in ecosystems (Halah et al., 2024). They also developed an understanding of the impact of human activities on the environment, such as littering and habitat destruction. Data collected from SD Negeri Nongkosawit 01 revealed that after participating in mini-research-based learning, students became more diligent in carrying out their classroom cleaning duties. Their discipline in waste sorting was rated moderate, primarily due to the lack of adequate waste management facilities at the school. However, students had already understood the different types of waste and how to separate them correctly. According to Halim (2022), external factors such as available infrastructure play a significant role in character formation.

Additionally, through direct observation of nature, students developed habits such as energy conservation—turning off classroom lights when not in use without teacher reminders, using water efficiently, and shortening their time in the restroom or during ablution (wudu). At SD Negeri Nongkosawit 01, these behaviors were categorized as good. Since Nongkosawit is an area prone to water shortages, observing water pollution firsthand helped students become more conscious of water conservation and energy efficiency. However, a challenge remained: students had not yet mastered composting organic waste or food scraps, primarily due to insufficient school facilities and inconsistent waste processing habits. Although composting and maggot cultivation training had been conducted, proper waste management practices were still lacking.

At SD Islam Bintang Juara, environmental awareness—a dimension of faith and piety toward God Almighty and noble character—had already been established through various school routines. However, energy conservation remained a challenge. Since many students lived far from school, they relied on fossil fuel-based transportation. Moreover, students were still less attentive to electricity and water usage—some left classroom lights on, and many were not mindful of water consumption. However, aspects such as cleaning duties, bringing reusable lunch containers, finishing meals, and composting were already well-practiced. Mini-research learning further reinforced these habits.

Mini-research-based learning that integrates Semarang's local potential, particularly outdoor learning, has been shown to increase learning motivation and foster a love for the environment (Rabiatul, 2022). The mini-research approach designed by researcher encouraged students to directly observe nature at Tapak Mangrove Forest, Tugu, Semarang. When engaging in direct field observations, students gained awareness of ecological damage and ecosystem destruction caused by waste (Hanifatin, 2015). This experience strengthened their commitment to protecting the environment, as reflected in their habit of bringing their own reusable food containers.

Environmental awareness in students will not develop unless they actively engage in environmental conservation efforts (Sabardila, et al., (2019). During mini-research activities, students directly observed and participated in environmental protection efforts, such as maintaining classroom cleanliness and reducing plastic waste by bringing their own food and drink containers. These actions helped establish awareness and habitual behavior, ultimately fostering a strong sense of environmental responsibility (Triyana et al., (2018). Instilling environmental awareness from an early age is crucial, as it contributes to climate crisis prevention in the future (Yunesa, 2018). Schools must take collective action to ensure students and staff uphold environmental responsibility—such as enforcing strict waste disposal policies and preventing environmental damage—to nurture a deep-rooted sense of environmental stewardship (Saputri (2019).

CONCLUSION

The conclusion of this study shows that the characteristics of critical thinking and environmental awareness, as outlined in the Pancasila Student Profile, in mini-research learning based on the local potential of Semarang City fall into the "good" category. This is indicated by students' critical thinking level, with a learning outcome score of more than 0.7 and a questionnaire result of 83.6%, as well as their environmental awareness, which reached 79.64%.

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