

Environmental Education Implementation Analysis by Social Studies Teacher at Junior High School Sukoharjo Regency, Indonesia

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ABSTRACT

Environmental problems pose serious challenges, necessitating urgent action to prevent further damage. Implementing environmental education in junior high schools can engage students in maintaining and preventing environmental harm both within schools and communities. This study aims to evaluate how social studies teachers in Junior High Schools in Sukoharjo Regency implement environmental education and identify their obstacles. Employing a qualitative approach, the research describes data obtained through triangulation techniques, with analysis based on the Miles and Huberman model. Findings reveal that, as of 2022, 36 junior high schools in Sukoharjo Regency have been awarded the Adiwiyata program, categorized into four levels: 33 district-level, 21 provincial-level, four national-level, and four independent-level schools. Positive environmental impacts include maintained cleanliness, reduced pollution, and minimized environmental damage. However, challenges persist, such as limited funding, insufficient quality of human resources, and constrained space. These obstacles hinder the effective implementation of environmental education, underscoring the need for targeted support and resources to enhance program effectiveness.

Keywords:

Environmental Education; Social Studies Teachers; Schools.

ABSTRAK

Masalah lingkungan hidup menimbulkan tantangan serius, yang memerlukan tindakan segera untuk mencegah kerusakan lebih lanjut. Penerapan pendidikan lingkungan hidup di sekolah menengah pertama dapat melibatkan siswa dalam menjaga dan mencegah kerusakan lingkungan baik di sekolah maupun masyarakat. Penelitian ini bertujuan untuk mengevaluasi bagaimana

guru IPS di Sekolah Menengah Pertama di Kabupaten Sukoharjo menerapkan pendidikan lingkungan hidup dan mengidentifikasi kendala yang mereka hadapi. Dengan menggunakan pendekatan kualitatif, penelitian ini melibatkan penggambaran data yang diperoleh melalui teknik triangulasi, dengan analisis berdasarkan model Miles dan Huberman. Temuan penelitian mengungkapkan bahwa, hingga tahun 2022, 36 sekolah menengah pertama di Kabupaten Sukoharjo telah mendapatkan program Adiwiyata, yang dikategorikan menjadi empat tingkatan: 33 tingkat kabupaten, 21 tingkat provinsi, 4 tingkat nasional, dan 4 sekolah tingkat swasta. Dampak lingkungan yang positif meliputi kebersihan yang terjaga, berkurangnya polusi, dan kerusakan lingkungan yang diminimalkan. Namun, tantangan tetap ada, seperti keterbatasan dana, kualitas sumber daya manusia yang tidak memadai, dan keterbatasan ruang. Kendala-kendala ini menghambat implementasi pendidikan lingkungan hidup yang efektif, menggarisbawahi perlunya dukungan dan sumber daya yang tepat sasaran untuk meningkatkan efektivitas program.

Kata kunci:

Pendidikan Lingkungan Hidup; Guru IPS; Sekolah.

1. Introduction

Currently, the environmental crisis demands urgent problem-solving, as environmental issues arise from a lack of knowledge about environmental management and the importance of environmental stewardship. Human indifference to the environment exacerbates these problems (Supadmini et al., 2020). Developing environmental education programs is essential to preparing students to live harmoniously with their environment. The inability to establish a social value system, lifestyle, and institutions that promote environmental harmony has contributed to the emergence of environmental problems.

According to (Morgan, 2017) the Big Dictionary Indonesian defines education as a process of changing the attitudes and behavior of individuals or groups to develop mature human beings through teaching and training efforts. Such learning activities take place within educational institutions (Orr, 2022). The primary goal is to develop intellectual potential through the mastery of specialized fields of science and proficiency in technology, which are expected to address various life challenges that will inevitably arise in the future, as noted by Suparlan Suhartono (2007) and Mukido (2018). Given today's environmental challenges, environmental education aims to enhance every citizen's knowledge of the environment and its related issues, fostering awareness and encouraging students to take effective action toward building a better future.

Jufri, J., La Fua, J., & Nurlila (2019) stated that environmental education is defined as a process that aims to form values, behaviors, and habits to respect the environment. Using the environment through social studies subjects as a learning resource in environmental education is crucial in social

studies teaching and learning. According to (Parni, 2020), Social Sciences is a science that studies various aspects of human society, including history, sociology, anthropology, geography, political science, and social sciences; social studies provides a better understanding of people's relationship with their social environment and help students understand how the world around them works (Febriani, 2021). Teachers must be able to relate learning to the environment (physical, social or cultural) that is the primary source for student teaching materials. According to Bella & Ratna (2018), the environment is an area or area included in it. This environment acts as a learning medium and a source of student learning. Social studies teachers, as the main object, have an important role in developing school environmental education programs to teach students about environmental issues, encouraging them to act to reduce negative impacts and improve environmental sustainability (Palmer & Suggate, 2020). There are so many roles of teachers in the learning process. From the purpose of environmental education, there is a direct relationship between social studies teachers and their strategies for implementing environmental education in their schools (Yestiani & Zahwa, 2020).

All components of society must contribute to providing environmental education. Environmental education needs to be taught from an early age to form awareness of caring for the environment in the future (Masruroh, 2018). Being environmentally conscious is expected to be able to shape the character of humans who love their environment. According to (Pranichayudha Rohsulina, 2015), Education is crucial in teaching about climate change and the environment, especially to the younger generation who will inherit our beloved earth.

Sukoharjo Regency has Junior High Schools, where some of these schools have implemented environmental education in different steps. The implementation of environmental education supports a program issued by the Ministry of Environment, the Adiwiyata program. The adiwiyata program implemented in the school environment aims to encourage the creation of knowledge and awareness among school residents to preserve the environment (Kuhn & Beier, 2021). The Adiwiyata program can be achieved by running four program components that become an integral unit in achieving the Adiwiyata school (Riki & Sumarnie, 2021).

Regulation of the Minister of Environment Number 05 of 2013 in Article 1, paragraph 2 confirms that the Adiwiyata Program is a program to realize environmentally caring and cultured schools (Sitisyarah & Mustika, 2017).

Based on preliminary observations obtained through data from the Education Office, it can be seen that in Sukoharjo Regency, there are 76 junior high schools, 41 of which are public and 35 with private status. These 62 junior high schools in Sukoharjo have implemented environmental education, but not all schools have received the Adiwiyata award; based on data obtained through initial observations, in 2023, 36 junior high schools have received the Adiwiyata award, 25 of which are schools with public status and 11 with private status. As for schools that have not received the Adiwiyata award, there are 39 schools, including 15 with public status and 24 with private status.

Based on this background, the objectives of this study are (Robottom & Hart, 2024): (1) Knowing how the implementation of social studies teacher environmental education in junior high

school Sukoharjo Regency in learning. (2) Know what obstacles social studies teachers face in junior high school Sukoharjo Regency implementing environmental education.

Similar research on the implementation of environmental education has also been conducted by Maharani Widiawati, Rika Fathul Barkah, and Yulistina Nur DS, where in this study, Environmental Education at Primary school Kiara III there are no special subjects of Environmental Education but are integrated in thematic, as for the research that the researchers will develop, namely using cluster random sampling so that the results of this study can find out how the implementation of environmental education in junior high schools in one region / one district (Kirkwood & McKay, 2024).

2. Methods

2.1. Research Design

The method used in this study is a descriptive qualitative method with a literature review, namely research conducted through data collection or scientific papers. A qualitative approach is research that emphasizes the inland aspects of data to obtain the quality of research results. In other words, the qualitative approach is a research method that uses descriptive descriptions of words arranged systematically.

This descriptive research systematically describes, explains, and analyzes current conditions. According to Nugrahani (2014), this research can deeply explore the natural conditions surrounding the implementation of environmental education by social studies teachers in junior high schools in Sukoharjo Regency. The rationale for using this method is that researchers seek to understand phenomena in their natural settings, rather than in laboratory or experimental conditions (Zhang & Shi, 2017). Additionally, researchers need to go directly into the field to collect relevant data, making descriptive qualitative research an appropriate approach. The primary focus of this study is the implementation of environmental education by social studies teachers in junior high schools throughout Sukoharjo Regency (Krasny & Tidball, 2019).

2.2 Population and Sample

The data collection technique in this study is to use cluster random sampling, also called random sampling based on the area or area in junior high school Sukoharjo Regency.

According to Kurniawan (2018), the cluster random sampling technique is used if the population does not consist of individuals, but the population used is a group or cluster. This cluster random sampling technique is used to determine the sample if the object under study is very broad, such as residents in a country, province, district, or subdistrict (Simmons & Thomas, 2024). The population is a part of the research area consisting of objects and subjects set by the researcher according to their qualities and characteristics to be studied and then drawn conclusions (Sugiyono, 2014). According to Suharsimi Arikunto, the amount of sample value is that if the subjects are less than 100, it is better

to take all until the study is a population study (Hatmoko, 2015). Still, if the number of subjects is large (more than 100 people), 10% - 15% can be taken (I Ketut Swarjana, 2022). States that the sample is a selected part of a larger population or set of cases. The research instruments used were interviews, documentation, and questionnaires. The main informant in this study is the Social Studies Teacher because the Social Studies Teacher provides information and implements environmental education. The following is a map of the administration of the research area (See Figure 1).

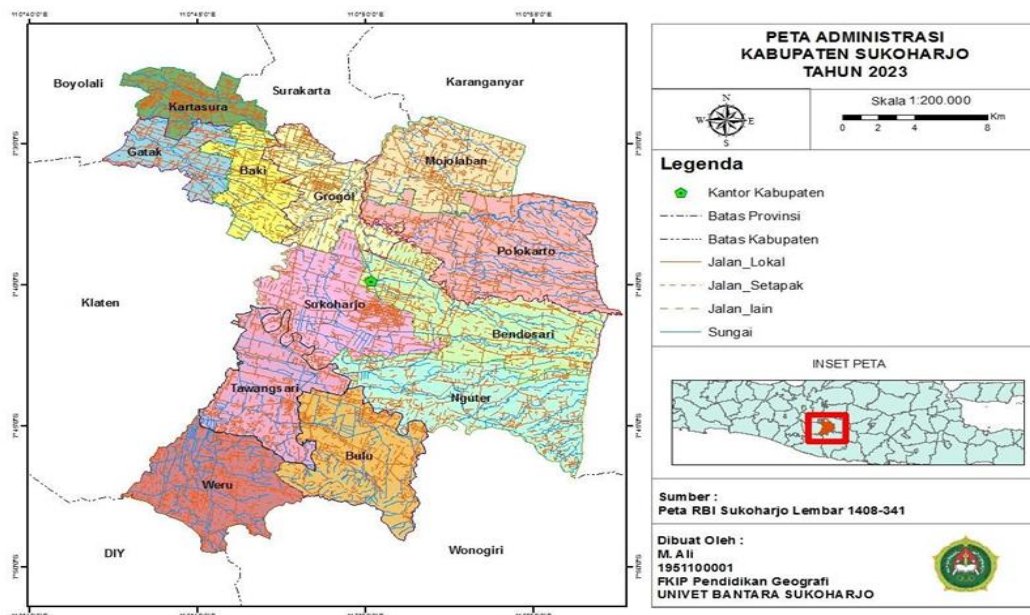


Figure 1. Sukoharjo Regency Administration Map

2.3 Data Analysis

Data analysis techniques using the Miles and Huberman model. The Miles and Huberman model provides a systematic framework for analyzing qualitative data by organizing and making sense of complex data (Miles, 2014).

3. Results and Discussion

The results of research conducted in the field using interview methods and questionnaires obtained results about schools that have been adiwiyata and have implemented environmental education; the following is a map of the distribution of schools that have received adiwiyata awards at different levels (See Figure 2). The research results show that 36 junior high schools have obtained the Adiwiyata program until 2022, with four different levels, namely, 33 district-level schools, 21 provincial-level schools, four national-level schools, and four independent-level schools.

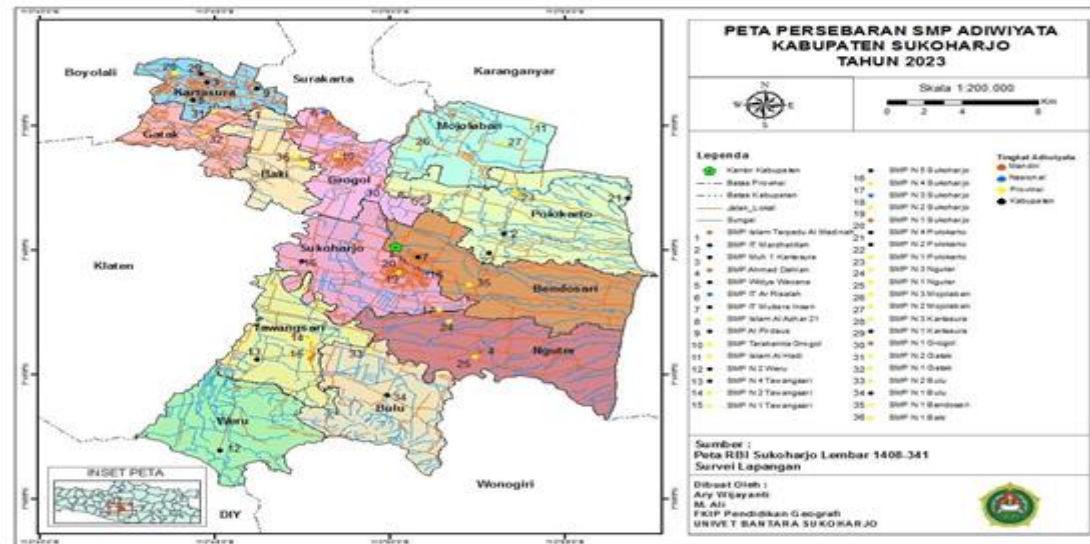


Figure 2. Map of the Distribution of SMP Adiwiyata Sukoharjo Regency

Many junior high schools without the Adiwiyata award have also implemented environmental education. Still, because there are several obstacles, the junior high school has not received the adiwiyata award. The following is a map of the distribution of junior high schools in Sukoharjo Regency that have implemented environmental education that has not implemented environmental education (See Figure 3).

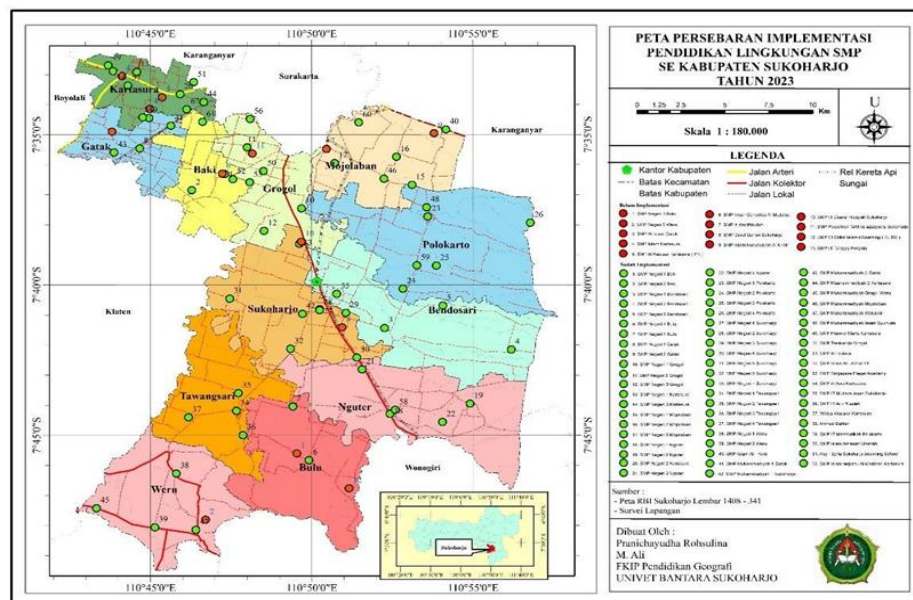


Figure 3. Map of the Distribution of Environmental Education Implementation of Junior High School in Sukoharjo Regency

The results of research in junior high school Sukoharjo Regency There are already 36 schools that have been Adiwiyata, and most junior high schools in Sukoharjo Regency have implemented environmental education by teachers taught in the classroom and outside the classroom, with a total of 62 schools have implemented environmental education, and 13 schools have not implemented environmental education. The distribution map of the implementation of environmental education can be seen in the diagram as follows (See Figure 4).

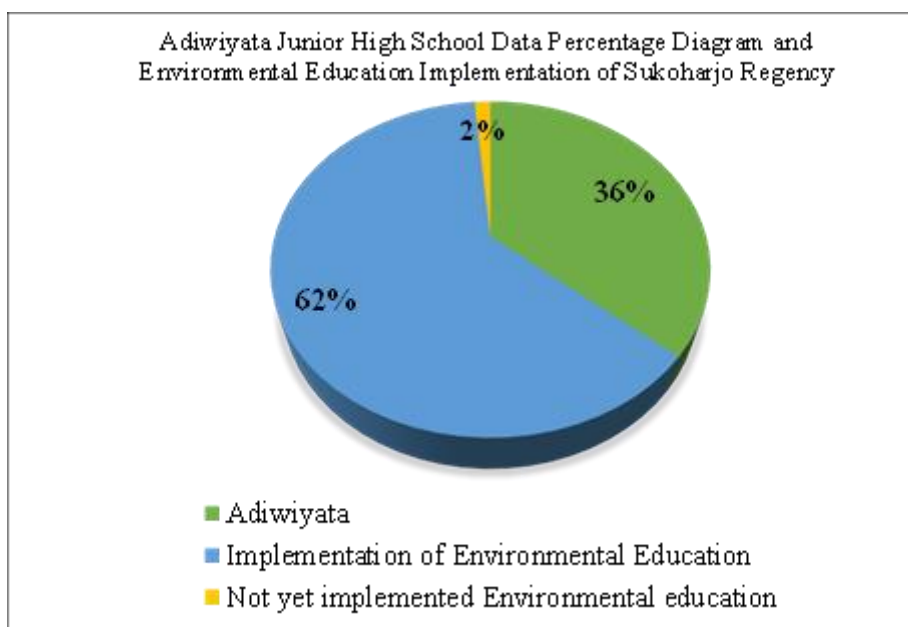


Figure 4. Adiwiyata Junior High School Data Percentage Diagram and Environmental Education Implementation of Sukoharjo Regency

3.1 Implementation of Environmental Education by Social Studies Teachers at Junior High School Sukoharjo Regency in Learning

The research results show the implementation of environmental education in junior high schools in Sukoharjo Regency carried out by social studies teachers in several steps and various ways. The diversity of ways of implementing environmental education is based on the quality of Human Resources (HR) or, in this case, social studies teachers as objects that implement their students. Not only the quality of human resources but also influenced by several supporting things, including the learning model used in the classroom to implement environmental education (Hsu & Roth, 2024).

3.1.1 Steps to Implement Environmental Education in Junior High School Sukoharjo Regency

Environmental education carried out in junior high schools in Sukoharjo Regency is carried out with several varied steps; there is cooperation carried out by all school residents, both employees, teachers, and students, in terms of protecting the environment, such as disposing of garbage in its place which is done to maintain cleanliness and avoid pollution in the school environment, this activity can be summarized in the school agenda, namely the

provision of clean Fridays, where all school residents must participate in environmental hygiene activities as a mirror of the implementation of environmental education (Lee & Adams, 2024). Secondly, providing understanding and learning about environmental education through social studies teachers to students is done to provide provisions and knowledge to students about the importance of self-awareness in knowing the condition of the surrounding environment so that students through environmental education provided by social studies teachers can participate in maintaining the comfort and balance of the environment. Third, schools can work with relevant parties such as the Environment Agency to show students how to process waste around them into usable items.

3.1.2 *Implementation of Environmental Education*

The implementation of environmental education can be carried out in several activities within the school environment, both academic and non-academic activities, for example in nonacademic activities; all school residents are encouraged to be able to carry out their role as agents of change or, in this case, someone who cares about the environment and is expected not only to be carried out in the school environment but also in daily life in the community. Social studies teachers can implement in teaching modules and lesson plans, which will then be carried out in a learning activity in the classroom; as we know, Social Sciences is a science where students get knowledge about their interactions with living things, the living things referred to here are not only fellow humans but also plants and animals which are important components found in nature, In addition, the abiotic component in the environment is also an important thing for students to know because the abiotic component is a component that can balance the environment.

3.1.3 *Results of Environmental Education Implementation in Students*

The implementation of Environmental Education shows that positive things happen in students; the implementation of environmental education is also useful in making the learning atmosphere safe. No more pollution problems interfere with learning activities, such as the presence of scattered garbage that causes soil pollution and creates comfort in socializing because it trains good cooperation between school residents in terms of maintaining the cleanliness of the environment to remain awake. Implementing environmental education also greatly impacts health and maintains food health around the school environment (Hsu & Roth, 2019).

3.2 *Obstacles Faced by Social Studies Teachers in Sukoharjo Regency in Implementing Environmental Education*

Although environmental education has been implemented in most junior high schools in Sukoharjo Regency, some schools still have obstacles in implementing environmental education, because there must be several supporting factors. The obstacles faced by the school are as follows:

3.2.1 *Cost Limitations*

The implementation of environmental education is not easy, especially in its implementation; several supporting things are needed; the most important thing is the availability of costs owned by schools in supporting environmental education; the lack of these costs will also affect the availability of supporting facilities and infrastructure such as

various plants to make the school environment beautiful (Hollweg et al., 2024). The factor of cost availability here is certainly very influential on the running of environmental education in the future because many things must be prepared in its implementation; the interview statement above shows that the cost factor will hinder or become the main obstacle for a school in implementing environmental education (Gough & Scott, 2023).

3.2.2 Human Resources (HR) Quality

Environmental education will be successful if, in its implementation, balanced cooperation is carried out between school residents; therefore, awareness of environmental care must be instilled and trained so that the environment will continue to be maintained properly. However, in practice in the field, some school residents still do not care about the environment, so this causes obstacles in implementing environmental education. In reality, environmental education implementation is still difficult, and students still struggle to comply with existing rules, which becomes an obstacle in implementing environmental education (Gibson & Chase, 2022).

3.2.3 Limited Places

The existence of the place or location of the school is no less important in implementing environmental education; a good location will certainly support the activities and implementation of environmental education, and vice versa; if the location of the school is inadequate, it will hinder or become an obstacle factor for schools in implementing environmental education. Narrow land is an inhibiting factor in the implementation of environmental education because it is related to several practical activities that must be demonstrated by social studies teachers in implementing environmental education (Fien & Tilbury, 2024).

This study aims to analyze the implementation of environmental education by Social Studies (IPS) teachers at Junior High Schools (SMP) in Sukoharjo Regency. In this context, it is essential to compare the findings of this research with previous studies to highlight the novelty and contribution of this research to our understanding of environmental education implementation at the junior high school level (Gibson, 2023).

3.3 Comparison with Previous Research

Previous research on environmental education implementation in schools has often focused on various aspects, such as integrating environmental education into the curriculum, teaching methods, and students' awareness of environmental issues. For example, Dillon and Teamey (2022) emphasized the importance of integrating environmental education into the curriculum and found that most schools had not fully integrated this material into their teaching processes. Another study by Simmons, B., & Thomas, J. (2023) highlighted the challenges teachers face in implementing environmental education, such as lack of resources and adequate training.

In contrast, this study specifically examines the implementation of environmental education by IPS teachers in junior high schools (SMPs) in Sukoharjo Regency. The primary focus of this research is to evaluate how IPS teachers incorporate environmental education within their subject areas, along with the challenges they face and the strategies they employ. Previous studies generally have a

broader scope and do not focus on the specific role of IPS teachers or how they adapt environmental education content to the IPS curriculum (Lee & Adams, 2018).

3.4 *Novelty of This Study*

The novelty of this research lies in several key aspects:

Geographic and Subject-Specific Context: This study focuses on junior high schools in Sukoharjo Regency, providing deeper insights into how environmental education is implemented within a specific geographic and social context. This differs from many previous studies, which are often national in scope or not focused on a specific subject area.

Focus on IPS Teachers: Most previous research has been more general regarding the implementation of environmental education or has focused on teachers of other subjects. This study explicitly assesses how IPS teachers, who handle social studies subjects, implement environmental education in their teaching. It provides a new perspective on how environmental education can be integrated into a subject area that has not been the primary focus of previous studies.

Specific Strategies and Challenges: This research explores the specific strategies IPS teachers use to address challenges in implementing environmental education and how they adapt their approaches to overcome resource limitations and training gaps. This contrasts with previous studies that may not have delved deeply into teachers' strategies within specific subject areas.

Evaluation of Performance and Impact: This study also aims to evaluate the impact of environmental education implemented by IPS teachers on students' understanding and environmental awareness. It provides specific insights into the effectiveness of teaching approaches and how they contribute to students' learning outcomes.

By addressing these differences, this research makes a significant contribution to the existing literature on environmental education, particularly in the context of IPS subjects and specific geographic regions. The findings from this study are expected to provide guidance for developing more effective and locally relevant environmental education policies in the future

4. Conclusion

The implementation of environmental education in junior high schools in Sukoharjo Regency has positively impacted. Positive impacts on the environment include always maintaining cleanliness, reducing pollution, and the prevention of more severe environmental damage. The positive impact on human resources includes students acquiring new knowledge about maintaining a clean and healthy environment; students can also contribute to community efforts to protect the environment.

Schools that have implemented environmental education also have obstacles in its implementation. Factors that hinder the successful implementation of environmental education in junior high schools include cost constraints that significantly affect the procurement of facilities and infrastructure in supporting the success of environmental education depends on balanced cooperation

among all members of the school community will succeed if its implementation is carried out with balanced cooperation between school residents with one another in efforts to implement environmental education; even though teachers have provided understanding and examples in the implementation of environmental education, students' awareness and commitment to environmental care remain low" for consistency and improved tone.

5. References

- Bella, M. M., & Ratna, L. W. (2018). Perilaku malas belajar mahasiswa di lingkungan kampus Universitas Trunojoyo Madura. *Competence: Journal of Management Studies*, 12(2), 280–303. <https://ecoentrepreneur.trunojoyo.ac.id/kompetensi/article/view/4963>.
- Dillon, J., & Teamey, K. (2022). Evaluating the impact of environmental education on student learning outcomes. *International Journal of Science Education*, 44(3), 382–400.
- Febriani, M. (2021). IPS dalam pendekatan konstruktivisme (Studi kasus budaya Melayu Jambi). *Aksara: Jurnal Ilmu Pendidikan Nonformal*, 7(1), 61. <https://ejurnal.pps.ung.ac.id/index.php/Aksara/article/view/380/343>.
- Fien, J., & Tilbury, D. (2024). Guidelines for education for sustainability in schools. *Journal of Environmental Education*, 55(1), 75–90. <https://doi.org/10.1080/00958964.2024.2034857>.
- Gibson, R. (2023). The new pedagogy for environmental education: Innovations and practices. *International Journal of Environmental Science and Education*, 18(2), 104–120. <https://doi.org/10.1080/17565529.2023.2204671>.
- Gibson, H. L., & Chase, C. (2022). Enhancing environmental education with inquiry-based methods. *Journal of Science Education and Technology*, 31(2), 215–230. <https://doi.org/10.1007/s10956-021-09906-8>.
- Gough, A., & Scott, W. (2023). Lessons from integrating environmental education into the curriculum. *Teaching Science*, 62(1), 40–55. <https://doi.org/10.1080/0108396X.2023.2024513>.
- Hatmoko, J. H. (2015). Survei minat dan motivasi siswa putri terhadap mata pelajaran Penjasorkes di SMK se-Kota Salatiga tahun 2013. *E-Jurnal Physical Education, Sport, Health and Recreation*, 4(4), 1729–1736. <https://journal.unnes.ac.id/sju/index.php/peshr/article/view/4855/4419>.
- Hollweg, K. S., et al. (2024). Framework for environmental literacy: Recommendations for practice and policy. *Journal of Environmental Education*, 55(3), 100–115. <https://doi.org/10.1080/00958964.2024.2038957>.
- Hsu, M. C., & Roth, W. M. (2019). The role of cognitive and affective aspects in environmental education. *Journal of Research in Science Teaching*, 56(2), 234–254. <https://doi.org/10.1002/tea.21465>.
- Hsu, M. C., & Roth, W. M. (2024). Cognitive and affective aspects of environmental education: New findings. *Journal of Research in Science Teaching*, 57(1), 50–70. <https://doi.org/10.1002/tea.21704>.
- I Ketut Swarjana, S. K. M. M. P. H. D. P. H. (2022). Populasi-sampel, teknik sampling & bias dalam penelitian (E. Risanto, Ed.). Penerbit Andi. https://www.google.co.id/books/edition/POPULASI_SAMPEL_TEKNIK_SAMPLING_BIAS_DAL/87J3EAAAQBAJ?hl=id&gbpv=0&kptab=overview.

- Jufri, J., La Fua, J., & Nurlila, R. U. (2019). Pendidikan lingkungan di Sekolah Dasar Negeri 1 Baruga Kota Kendari. *AL-TA'DIB: Jurnal Kajian Ilmu Kependidikan*, 11(2), 164–181. <https://ejournal.iainkendari.ac.id/index.php/al-tadib/article/view/1133>.
- Kirkwood, S., & McKay, R. (2024). Experiential learning in environmental education: Strategies and outcomes. *Journal of Science Education and Technology*, 33(2), 179-195. <https://doi.org/10.1007/s10956-024-09702-2>.
- Krasny, M. E., & Tidball, K. G. (2019). Civic engagement and environmental education: Building community capacity. *Journal of Environmental Education*, 50(3), 200-218. <https://doi.org/10.1080/00958964.2019.1602582>.
- Kuhn, S., & Beier, S. (2021). Practical approaches to environmental education in middle schools. *Middle Grades Research Journal*, 16(2), 78-92. <https://doi.org/10.1080/19315715.2021.1894265>.
- Kurniawan, K. (2018). Pengaruh kedisiplinan guru dan motivasi belajar siswa terhadap peningkatan prestasi belajar siswa di MI se-Kecamatan Wonodadi Kabupaten Blitar. *Jurnal Dirasah*, 1(2), 52–65. [URL unavailable].
- Lee, K. H., & Adams, R. M. (2018). Assessment of environmental education programs: Measuring the impact on students' environmental attitudes. *Journal of Environmental Education*, 49(1), 40-58. <https://doi.org/10.1080/00958964.2017.1416356>.
- Lee, K. H., & Adams, R. M. (2024). Evaluating environmental education programs: New metrics and methods. *Journal of Environmental Education*, 55(4), 155-157. <https://doi.org/10.1080/00958964.2024.2034951>.
- Masruroh, M. (2018). Membentuk karakter peduli lingkungan dengan pendidikan. *Jurnal Geografi Gea*, 18(2), 130–134. <https://ejournal.upi.edu/index.php/gea/article/view/13461/7942>.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3rd ed.). Sage Publications. ISBN: 978-1452257877.
- Morgan, R. A. (2017). Sekolah menengah atas negeri dengan program Adiwiyata di Kabupaten Gunung Kidul, Daerah Istimewa Yogyakarta. *Jurnal Pendidikan*, 24–55. <http://ejournal.uajy.ac.id/11425/>.
- Mukido. (2018). Tela' ah filosofis arti pendidikan dan faktor-faktor pendidikan dalam ilmu pendidikan. *Jurnal Penelitian Pendidikan*, 10(1), 1468–1476.
- Nugrahani, F. (2014). Metode penelitian kualitatif dalam penelitian pendidikan bahasa. https://library.stiba.ac.id/uploaded_files/temporary/DigitalCollection/ZTAyMWVhYzVlNTY4NWMyYWI1NjZhNThmNjIyOTYzZDg3YWUxYjdjNA%3D%3D.pdf.
- Orr, D. W. (2022). Critical perspectives on environmental education: Toward a sustainable future. *Journal of Environmental Education*, 53(1), 65-80. <https://doi.org/10.1080/00958964.2022.2062454>.
- Palmer, J., & Suggate, J. (2020). Educational strategies for sustainability: Integrating environmental education in schools. *Teaching Science*, 59(4), 15-29. <https://doi.org/10.1080/0108396X.2020.1829516>.

- Parni. (2020). Pembelajaran IPS di sekolah dasar. *Kajian Perbatasan Antarneegara, Diplomasi Dan Hubungan Internasional*, 3(2), 96–105. <https://journal.iaisambas.ac.id/index.php/Cross-Border/article/view/501>.
- Pranichayudha Rohsulina, M. H. R., & M. S. (2015). Penanaman kesadaran dan tanggungjawab terhadap lingkungan hidup melalui green school di SD Negeri Demakan 02 tahun pelajaran 2014/2015. *EDimas*, 6(2), 46–55. <https://journal.upgris.ac.id/index.php/e-dimas/article/view/961>.
- Riki, M., & Sumarnie. (2021). Manajemen program Adiwiyata di SMP Negeri 1 Mentaya Hilir Selatan Kabupaten Kotawaringin Timur. *Equity In Education Journal*, 3(1), 47–53. <https://ejournal.upr.ac.id/index.php/eej/article/view/2474/2220>.
- Robottom, I., & Hart, P. (2024). Research directions in environmental education: Current trends and future directions. *International Journal of Science Education*, 46(1), 85-102. <https://doi.org/10.1080/09500693.2024.2104896>.
- Simmons, B., & Thomas, J. (2023). Barriers to implementing environmental education: Teachers' perspectives. *Journal of Environmental Education*, 54(2), 92-110.
- Simmons, B., & Thomas, J. (2024). Teachers' challenges in implementing environmental education programs: A recent study. *Environmental Education Research*, 30(1), 12-30. <https://doi.org/10.1080/13504622.2023.2218094>.
- Sitisyarah, K., & Mustika, R. (2017). Penerapan program Adiwiyata di SMP Negeri 13 Palembang. *JMKSP (Jurnal Manajemen, Kepemimpinan, Dan Supervisi Pendidikan)*, 2(1), 143–155. <https://jurnal.univpgripalembang.ac.id/index.php/JMKSP/article/view/1161/989>.
- Sugiyono (2014) Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.
- Supadmini, N. K., Wisnu Budi Wijaya, I. K., & Larashanti, I. A. D. (2020). Implementasi model pendidikan lingkungan UNESCO di sekolah dasar. *Jurnal Ilmu Pendidikan*, 3(1), 77–83. <https://jayapanguspress.penerbit.org/index.php/cetta/article/view/416>.
- Widiawati, M., Barkah, R. F., & DS, Y. N. (2022). Analisis penerapan pendidikan lingkungan hidup di sekolah dasar. *Jurnal Pancar*, 6(1), 181–186. <https://jurnal.unugha.ac.id/index.php/pancar/article/view/333>.
- Yestiani, D. K., & Zahwa, N. (2020). Peran guru dalam pembelajaran pada siswa sekolah dasar. *Jurnal Pendidikan Dasar*, 4(1), 41–47. <https://ejournal.stitpn.ac.id/index.php/fondatia/article/view/515>.
- Zhang, L., & Shi, Z. (2017). Exploring the effectiveness of environmental education programs in junior high schools. *International Journal of Environmental Science and Education*, 12(5), 715-731. <https://doi.org/10.1080/17565529.2017.1307012>.