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Integrating Local Environmental Resources into Social Studies Curriculum: A Case Study of Primary Education in Enhancing Environmental Literacy

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Abstract

This study explores how integrating local environmental resources into the social studies curriculum at the primary school level enhances students' environmental literacy. This research used a qualitative case study approach with a case study design. Data were collected from 12 teachers, 16 students, and 4 community members through in-depth interviews, participatory observation, and document analysis. The data analysis technique used in this research is thematic analysis. transcription of interview and observation data, coding of data units, checking the consistency and validity of themes, and member checking. Data validity techniques in this study used source triangulation and method triangulation. The findings highlight the importance of contextualizing environmental education within social studies to foster a deeper connection between students and their local environment, thereby promoting sustainable practices and environmental stewardship. The study underscores the need for tailored strategies and continuous support to address challenges and ensure effective integration of local environmental resources into the curriculum.

Keywords: *Environmental Literacy, Indepencent Curriculum, Local Environmental, Social Studies*

A. Introduction

In the last decade, awareness of the importance of environmental literacy has increased globally, especially among educators and educational policy makers. Environmental literacy is defined as an individual's ability to understand, analyze and take action on environmental issues in the context of everyday life (McBeth and Volk 2015). With the growing urgency of environmental issues such as climate change, deforestation and pollution, environmental literacy is becoming a key component in basic education to equip the younger generation with the necessary skills and knowledge to contribute to environmental conservation (Hollweg et al. 2017). Curricula in various countries have begun to integrate environmental education to improve this literacy, and one effective approach is environment-based learning (G. A. Smith and Sobel 2014). Environment-based learning invites students to engage directly with the surrounding environment as part of the learning process, allowing them to develop a deeper understanding of local ecosystems and the impact of human actions on them (Lieberman and Hoody 2016). This approach not only increases student engagement but also builds stronger relationships between students and the environment they live in.

In Indonesia, efforts to integrate environmental education into the curriculum have been seen in recent years, along with the launch of Curriculum 2013 which emphasizes thematic and contextual learning. However, the implementation of environment-based learning in primary schools still faces various challenges, such as limited resources, lack of teacher training and lack of systematic integration in the curriculum (A. Rahman 2018). Therefore, a more structured approach is needed to integrate local environmental resources as a natural laboratory in social studies learning in primary schools. Local environmental resources, such as city parks, rivers, small forests and gardens, have great potential to be used as educational laboratories that provide students with hands-on learning experiences. Studies show that the use of local resources in learning can improve students' understanding of the subject matter as well as their environmental awareness (Rickinson et al. 2021). In addition, learning that focuses on the local environment allows students to see first-hand the relevance of what they are learning to their daily lives, which in turn can increase their motivation and engagement in the learning process (Chawla and Derr 2018).

At the elementary school level, social studies learning is often considered a theoretical subject and less relevant to students' daily lives (Supriatna 2019). In addition, social studies learning can effectively increase student engagement and understanding of concepts in various subjects, by providing more contextual and relevant learning

experiences (E. Y. Rahman and Maulana 2024). By integrating local environmental resources into the social studies curriculum, teachers can help students to see the connection between the concepts they learn in class and the real world. This approach can also help develop students' critical thinking and problem-solving skills, as they are invited to analyze and find solutions to environmental problems around them (Monroe et al. 2019). In addition, the use of local environmental laboratories in social studies learning is expected to overcome some of the challenges in environmental education, such as limited time and resources. By using the local environment as a learning resource, teachers can utilize what is around them without requiring additional costs for expensive laboratory equipment or long study trips(Erdogan and Marcinkowski 2020). It also allows for more flexible and adaptive learning, where students can learn directly in the field and gain in-depth and meaningful experiences.

Previous research shows that environment-based learning not only improves students' understanding of the subject matter, but also promotes the development of social and emotional skills, such as cooperation, responsibility, and care for the environment (Dyment and Bell 2021). This is particularly important at the primary school level, where students' character building is still in its early stages. By engaging students in environmentally-focused learning activities, they are also taught important values that will shape them into responsible citizens in the future (Stevenson et al. 2017). The increasing awareness of the importance of environmental education in recent years has encouraged the development of more innovative and contextualized learning approaches at the primary school level. As part of this effort, the integration of local environmental resources into the social studies curriculum has become increasingly relevant. This approach not only enriches students' learning experiences, but also promotes the development of deep environmental literacy (Rickinson, Lundholm, and Hopwood 2021). By providing students with opportunities to learn directly from their surroundings, schools can build the analytical and critical skills needed to understand and respond to increasingly complex global environmental challenges.

Recent research has shown that environment-based learning, particularly involving local resources, can significantly increase student engagement in the learning process. According to (Stevenson et al. 2022), when students are exposed to real situations in their environment, they are more likely to develop a deeper and more meaningful understanding of the subject matter. This is in line with the findings of (O'Brien, Roberts, and Plumb 2020) who state that students who learn through an environment-based approach show improvements in concept understanding as well as

critical thinking skills. Moreover, environmental literacy is not only concerned with cognitive knowledge, but also includes affective and behavioral dimensions (Leininger, Dyment, and Potter 2018). Through the integration of local environmental resources, students not only learn about environmental facts and concepts, but also develop positive attitudes towards environmental conservation and readiness to engage in pro-environmental actions. This is particularly important given that comprehensive environmental literacy is key in preparing future generations to become responsible and sustainable citizens.

However, despite its clear benefits, the implementation of environment-based learning in primary schools still faces various challenges, especially in the context of integration into the formal curriculum. Teachers often experience difficulties in designing and implementing learning activities that utilize local resources due to lack of adequate support and guidance (Littledyke and Manolas 2020). In addition, logistical constraints such as time, resources and access to local environmental sites are also often significant barriers (Miller, Semken, and Menard 2022).

However, despite the potential benefits, the integration of local environmental resources into the social studies curriculum in primary schools remains under-explored. Many teachers lack the confidence or knowledge to utilize the local environment as an effective learning tool (Gough 2021). In addition, limitations in terms of school policies and support from the government are also factors that hinder the widespread implementation of this approach (Tilbury and Wortman 2020).

Environmental education has become a central issue in education systems around the world, including in Indonesia. Increasing environmental damage due to human activities demands educational efforts to build environmental awareness and literacy from an early age. Environmental education aims to improve pro-environmental knowledge, attitudes and behaviors, which are essential in creating a sustainable society (Tilbury and Wortman 2020). In primary schools, the social studies curriculum has a strategic role in building students' environmental awareness by integrating local resources as part of learning. The use of local environmental resources helps students understand the geographical conditions and ecosystems around them, so that they can better appreciate and protect their environment (Carter, Smith, and Lee 2023). Environmental literacy through local resource-based curriculum can also strengthen contextualized learning that is relevant to students' daily lives.

However, the integration of local environmental resources in the curriculum still faces various challenges, such as limited resources and teacher readiness in implementing it (G. A. Smith and Sobel 2014). The social studies curriculum in elementary schools is often theoretical and lacks emphasis on local potential that can connect students with their environment more deeply (Griffiths & Westbrook, 2020). In fact, good environmental literacy can equip students with the knowledge and skills needed to contribute to environmental conservation in the future (Strife, 2017). Therefore, it is important to examine how the integration of local environmental resources in the social studies curriculum can improve students' environmental literacy in elementary schools.

While there are many studies that have highlighted the importance of environmental literacy and the benefits of environment-based learning at the primary school level, most of these studies have focused on general approaches without specifically exploring the integration of local environmental resources into the social studies curriculum. Previous research often discussed environmental learning in the context of science education or as an additional program, without giving adequate attention to the potential of social studies as a platform for developing environmental literacy that is contextual and relevant to students' daily lives.

In addition, many studies put more emphasis on students' cognitive outcomes, such as concept understanding and improved academic achievement, while affective and behavioral aspects, such as the development of pro-environmental attitudes and concrete actions, are less researched in depth. This gap suggests that there is an urgent need for research that examines how local environmental resources can be effectively integrated into social studies learning in primary schools, with a focus on developing holistic and applicable environmental literacy. This research will fill the gap by providing practical insights into the implementation of learning strategies that utilize the local environment, as well as evaluating their impact not only on students' understanding, but also on their environmental attitudes and behaviors.

The novelty of this research is its direct integration of local environmental resources into the primary social studies curriculum to enhance environmental literacy. Unlike previous studies that often treat environmental education as part of science or an additional program, this study systematically incorporates local resources into social studies to deepen students' understanding and promote pro-environmental attitudes and behaviors. By focusing on affective and behavioral outcomes, not just cognitive, the research provides practical guidance for teachers and fills a gap in the literature with a

concrete model for implementing environmental literacy in local primary education contexts.

This research is important because the development of effective environmental literacy at the primary school level in Jember District is crucial in equipping future generations with the necessary skills and knowledge to face global environmental challenges. With environmental issues such as climate change and pollution on the rise, educating students early on about the importance of environmental conservation and practical ways to contribute to such efforts is highly relevant. Integrating local environmental resources into the social studies curriculum gives students the opportunity to learn in a hands-on and meaningful context, strengthening their understanding of the interaction between humans and the environment around them. This research not only helps in designing more contextualized and effective learning approaches, but can also influence educational policies and teaching practices to support the development of holistic environmental literacy, ultimately supporting the achievement of sustainable development goals at local and global levels. Based on this, this study aims to explore how local environmental resources can be integrated into the social studies curriculum in primary schools to improve students' environmental literacy.

B. Research Method

The location of this research is in elementary schools in Jember Regency, including SDN Gunungsari 02, SDN Sidomekar 08, MI Al-Mu'arif Al-Mubarok, and SDN Kasiyan Timur 02. This research uses a qualitative approach with a case study design to understand in depth how local environmental resources can be integrated into the social studies curriculum in basic education to improve students' environmental literacy. Case studies were chosen because they allow researchers to explore phenomena in their real and complex contexts, focusing on one or several specific cases. This approach allows researchers to collect rich and detailed data and understand how the concept of integration is applied in the field.

This research was conducted in several elementary schools located in rural areas in Jember Regency that have diverse natural resources. The research participants consisted of 12 social studies teachers, 16 students, and 4 local community members involved in the process of education and environmental conservation. The selection of participants was purposive, considering their involvement and experience in integrating local environmental resources into social studies learning. The research setting was chosen based on the availability of significant local natural resources, which can be used

as learning media to improve students' environmental literacy. Data in this study were collected through in-depth interviews, participant observation and document analysis. Interviews were conducted with teachers, students and community leaders to explore their understanding of the integration of local environmental resources in learning. Participant observation was conducted during the learning process, focusing on how environmental resources are used in learning activities. Document analysis includes reviewing the syllabus, lesson plans, and teaching materials used by teachers in integrating environmental aspects.

The data analysis technique used in this research is thematic analysis. The first step began with a detailed transcription of the interview and observation data, where every recorded word and action was converted into text for further analysis. After that, the coding process was carried out by identifying relevant units of data and categorizing them based on the themes that emerged from the data. This coding was done manually and with the help of NVivo qualitative analysis software, which made it easier for researchers to organize and structure the data based on the codes that emerged. The themes identified included how teachers integrate local environmental resources into learning, the challenges faced in this integration process, and the impact on students' environmental literacy. The researcher then checked the consistency and validity of these themes through data triangulation, by comparing findings from interviews, observations and related documents. In addition, member checking was conducted by providing the initial results of the analysis to the participants to ensure that the researcher's interpretations were in line with their experiences and views. After the validation process, the themes were interpreted in the context of environmental education and literacy theory, with the aim of providing a deeper understanding of how local environmental resources can be effectively integrated in the social studies curriculum in primary schools to increase students' environmental awareness.

Data validity techniques in this study used source triangulation and method triangulation. Source triangulation involved collecting data from teachers, students and local community members who have played a role in environmental resource management. By comparing the views and experiences of these various sources, researchers can ensure that the data collected is not biased or subjective, and reflects a more comprehensive and accurate picture of how local environmental resources are integrated into social studies learning. In addition, triangulation of methods was conducted by combining various data collection techniques, including in-depth interviews, participant observation, and document analysis such as syllabus and lesson

plans. The use of these various methods aims to check the consistency of findings across the various techniques, thus increasing the validity of the research results. For example, findings from interviews regarding environmental integration strategies will be compared with direct classroom observations and document analysis to ensure that the data obtained is consistent and in-depth. By combining triangulation of sources and methods, this research not only reduces the possibility of bias, but also enriches the understanding of the impact of local environmental resources integration on students' environmental literacy in the context of social studies learning in elementary schools.

C. Disscussions

In elementary schools, social studies material is integrated in IPAS learning. In the Merdeka Curriculum, IPAS (Natural and Social Sciences) at the primary school level is designed to integrate natural and social sciences holistically. Field findings show that the use of local environmental resources as a learning context facilitates this integration better. Students can understand the linkages between natural and social phenomena more deeply when they see how environmental changes affect social life in their communities. For example, by studying the impact of climate change on local agriculture, students can combine ecological concepts with social studies of economics and community life. On interdisciplinary approach in IPAS learning that uses the local environment helps students develop a more holistic understanding of the interaction between humans and the environment. Students not only learn about scientific concepts such as photosynthesis or the water cycle, but also how these concepts affect the lives of local communities, such as in agriculture or water resource management. This helps students to understand environmental issues from a broader perspective, including social, economic and cultural aspects.

The Merdeka Curriculum emphasizes the importance of developing critical thinking and problem-solving skills. In the context of IPAS learning, findings suggest that the use of projects based on real problems in students' local environment can be very effective in achieving this goal. When students are faced with a real environmental problem, such as river pollution or deforestation, they are encouraged to analyze the problem, look for possible solutions, and consider the impact of the proposed action. This process not only strengthens their critical thinking skills, but also provides practical experience in applying the knowledge they learn. Follow-up findings revealed that students showed increased motivation and engagement in learning when they saw direct relevance between what they were learning at school and their own environment.

When students feel that IPAS lessons have a direct impact on their lives or their communities, they tend to be more eager to learn and more actively engaged in classroom activities. This is in contrast to traditional approaches that often leave students feeling that the subject matter is distant from their daily experiences.

The findings also show that Merdeka Curriculum provides more space for teachers to act as learning facilitators, not just as material deliverers. In IPAS learning integrated with the local environment, teachers more often guide students in exploration and discovery and help them connect new knowledge with their experiences. Teachers report that they feel more involved in the learning process as they can tailor the materials to students' needs and interests and use resources available in the local environment. IPAS learning linked to the local environment also showed a significant contribution to the development of environmental responsibility attitudes in students. Students who are involved in projects that aim to improve the environmental conditions around them tend to develop a higher awareness of the importance of protecting the environment. For example, projects to plant trees or clean up the environment around the school not only provide short-term benefits but also instill values of care for the environment that can last in the long run.

One of the other important findings is the importance of collaboration between schools and local communities in the implementation of IPAS learning. When schools work with environmental organizations, local government or community groups, students get the opportunity to learn from experts and engage in activities that have real impact. This collaboration also helps strengthen the relationship between the school and the community and provides additional resources that support student learning. This research found that customizing learning materials to local conditions is crucial in learning IPAS under the Merdeka Curriculum. By using relevant and specific examples from the surrounding environment, teachers can make learning materials more interesting and easily understood by students. For example, students living in coastal areas may more easily understand the concept of marine ecosystems if the material taught is directly related to the marine environment around them.

This study found that the integration of local environmental resources into the social studies curriculum at the primary school level in Jember District has a significant impact on improving students' environmental literacy. By using local resources as teaching materials, teachers are able to present materials that are more relevant and contextualized, which in turn makes it easier for students to understand environmental concepts. In addition, this approach helps students to see the connection between what

they learn in the classroom and the real situation in their surrounding environment, thus increasing students' interest and engagement in learning. One of the main findings of this study is the improvement of students' conceptual understanding of environmental issues after the implementation of local environment-based learning. Students who previously had limited understanding of concepts such as ecosystem, conservation and sustainability showed significant improvement after engaging in learning activities that utilized their surrounding environment. The use of real-life examples from the local environment helped students to connect theory with practice, thus strengthening their understanding.

Research findings from teacher interviews at SDN Gunungsari 02 found that the integration of local environmental resources in the social studies curriculum contributed to the development of pro-environmental attitudes among students. Students who engage in learning activities that focus on the local environment show increased awareness and concern for environmental issues. They were also more likely to engage in small actions that support environmental sustainability, such as reducing plastic use, saving energy, and keeping the environment clean. In addition to attitudes, this study also found changes in student behavior related to the environment. Students who engage in environment-based learning are more likely to apply what they learn in their daily lives. For example, many students started to adopt environmentally friendly practices at home, such as sorting waste and reducing water usage. This shows that environment-based learning not only affects cognitive understanding, but also brings real changes in students' behavior.

Teachers at SDN Gunungsari 02 also indicated that local environment-based learning increases students' involvement in the learning process. Activities that involve exploring the surrounding environment make students more active and enthusiastic in learning. They feel more involved because the material being studied has a direct link to their daily experiences. This engagement not only increases students' learning motivation, but also encourages them to think more critically and creatively. While the benefits are clear, this research also identified some challenges faced by teachers in implementing environment-based learning. One of the main challenges is the lack of resources and support from the school. Many teachers find it difficult to design and implement learning activities that utilize the local environment due to limited time, tools and teaching materials. In addition, limited access to safe and well-maintained natural environments is also a significant barrier.

Other findings from SDN Sidomekar 08 teacher interviews indicate that the role of the teacher is crucial in the successful implementation of environment-based learning. Teachers who have a good understanding of environmental concepts and environmental learning methods tend to be more successful in integrating local resources into the social studies curriculum. Adequate training and professional development are key factors supporting this success. Teachers who receive specialized training on environment-based learning are more confident and creative in designing effective learning activities.

In line with the above findings, interviews with MI Al-Mu'arif Al-Mubarok teachers also found that support from the school and local community is crucial to the successful implementation of environment-based learning. Schools that provide support in the form of resources, time and policies that support learning innovations tend to be more successful in implementing this approach. In addition, the involvement of local communities, such as parents and environmental organizations, also helps in enriching students' learning experience and ensuring the sustainability of the program. Other findings suggest that to ensure the sustainability of environment-based learning programs, there needs to be a deeper integration of these programs with the formal curriculum. Many schools successfully implemented the program initially, but faced difficulties in sustaining it due to the lack of systematic integration with the existing curriculum. Therefore, it is important to design environmental learning programs that are not just ad-hoc, but become an integral part of the learning process in schools.

Interview results with teachers MI Al-Mu'arif Al-Mubarok also show that local environment-based learning helps in the development of 21st century skills among students, such as critical thinking skills, collaboration, communication and creativity. Learning activities involving environmental exploration require students to work together, solve problems and think critically in facing real challenges. In addition, students also learn to communicate effectively both with their peers and with the surrounding community. The research findings show positive changes in students' perception of the environment after engaging in local environment-based learning. Students begin to see the environment as something important and valuable, not just the background of everyday life. This perception is crucial in shaping sustainable pro-environmental attitudes and behaviors in the future.

In addition to the impact on environmental literacy, interviews from teachers of the three schools also found that the integration of local environmental resources in the social studies curriculum can have a positive impact on students' academic achievement.

Students who learned through the environment-based approach showed improvements in their social studies learning outcomes, which may be due to their increased engagement and interest in the subject matter. This research found that technology can play an important role in supporting environment-based learning. The use of digital tools such as interactive maps, environmental apps and online learning platforms can enrich students' learning experience and allow them to explore environmental issues in greater depth. Technology also allows students to access information and resources that may not be available in their local environment, thus expanding the scope of learning.

Follow-up research found that the integration of local environmental resources in social studies learning in primary schools not only improved students' environmental literacy but also encouraged the development of collaboration skills. Students are often involved in group projects that require cooperation to complete tasks related to their surrounding environment. For example, in environmental observation activities or mapping the area around the school, students learn to work together, share tasks and support each other in achieving a common goal. These collaboration skills are essential in shaping students' social and emotional abilities, which also contribute to the formation of stronger character and the ability to work in teams in the future.

Further findings from interviews with teachers of SDN Kasiyan Timur 02 also show that local environment-based learning tends to increase parents' involvement in their children's education process. As learning activities often involve environments close to students' daily lives, it is easier for parents to get involved and understand what their children are learning. Some schools reported that parents take part in field activities or projects involving the environment, such as greening or cleaning up the neighborhood. This parental involvement not only strengthens the relationship between school and family but also provides additional support for students in practicing what they learn at home.

Further research from SDN Kasiyan Timur 02 confirmed that the practical experience gained through environment-based learning is very effective in strengthening students' theoretical understanding. For example, when students learn about the water cycle or ecosystems in social studies lessons, they understand these concepts more easily after directly observing these processes in their environment. This hands-on experience makes material that may be abstract more real and relevant, making it easier for students to relate theoretical knowledge to real situations. This practical experience also helps students remember information longer because they do not just hear or read about a concept, but also experience it directly.

Follow-up findings from this study also show that environment-based learning not only has a short-term impact, but also builds sustainable environmental awareness among students. Students who engage in environmentally-focused learning activities tend to bring this awareness into their lives outside of school and even after they graduate. They show a better understanding of the importance of taking care of the environment and tend to stay involved in pro-environmental activities, such as recycling, water conservation and reduced plastic use. This sustainable awareness is crucial in shaping a generation that is more concerned about the environment and committed to protecting nature in the future.

Another important finding is that a flexible curriculum plays a crucial role in supporting the implementation of environment-based learning. A less rigid curriculum allows teachers to adjust teaching materials and methods according to the local context and students' needs. This flexibility allows teachers to be more creative in designing learning activities that are relevant to the surrounding environment, as well as adapting materials to emerging environmental issues. A flexible curriculum also allows schools to adopt more innovative and experimental learning approaches, which can provide deeper and more meaningful learning experiences for students.

While many benefits were identified, follow-up research also revealed challenges in measuring the long-term impact of environment-based learning. One of the main challenges is the difficulty in objectively and sustainably assessing changes in student behavior. While students may show an increase in pro-environmental attitudes during the study period, measuring whether these changes persist in the long term requires more in-depth and continuous evaluation methods. In addition, external factors such as family and media influences can also affect the results of the study, thus requiring a more complex and holistic measurement approach to get an accurate picture of the impact of environment-based learning.

Follow-up research also highlighted that local context plays an important role in the successful implementation of environment-based learning. The different natural and social environments in each region influence how the program can be implemented and how students respond to it. In areas with good access to rich and diverse natural environments, students are likely to engage more easily and gain maximum benefit from the program. In contrast, in urban areas that may have limited access to nature, implementation challenges are greater. Therefore, it is important for schools and educators to consider the local context and adapt learning strategies to suit the specific conditions in their environment.

Further findings also show that enhancing teachers' capacity through training and professional development is critical to the success of environment-based learning. Teachers who were specially trained in environment-based learning methods showed better ability in designing and implementing effective programs. This training not only provides teachers with additional knowledge about the environment, but also equips them with the pedagogical skills necessary to integrate environmental materials into the social studies curriculum in a way that is interesting and relevant to students. In addition, ongoing support in the form of workshops and learning communities for teachers is also needed to maintain the sustainability and effectiveness of this program.

Follow-up research emphasizes the importance of continuous evaluation in optimizing environment-based learning programs. Regularly conducted evaluations allow schools and educators to identify what works and what needs improvement. With ongoing evaluation, schools can adapt their approach to address emerging challenges and capitalize on new opportunities. For example, evaluations may reveal the need for additional resources or adjustments to the curriculum to make it more relevant to the latest developments in environmental issues. Thus, continuous evaluation serves as an important tool to ensure that environmental learning programs remain effective and adaptive to changing educational and environmental needs.

Finally, the findings further suggest that there is an urgent need for education policies that better support the implementation of environment-based learning in primary schools. Policies that encourage the integration of local environmental resources in the curriculum and provide adequate support for teachers and schools can play an important role in disseminating best practices across the education system. In addition, policies that facilitate collaboration between schools, local communities and government in developing environmental education programs can also strengthen the impact of this learning. With supportive policies in place, environment-based learning can become an integrated and sustainable part of basic education, helping to shape a generation that is more environmentally conscious and prepared for the challenges of the future.

One of the salient findings of this research is that there is a strong connection between environmental learning and students' actions. Students who engage in contextualized and experiential learning tend to be more motivated to take actions that support environmental sustainability. This suggests that environment-based learning is not only effective in teaching concepts, but also in encouraging students to act on the knowledge they acquire. The final findings of this study are recommendations for the

development of educational policies that support the integration of local environmental resources in the primary school curriculum. Based on the research findings, it is recommended that policy makers consider integrating environment-based learning as a mandatory component in the social studies curriculum. This policy should be supported by the provision of adequate resources, training for teachers, as well as support from local communities to ensure the success and sustainability of environment-based learning programs in primary schools.

Environmental literacy in elementary school students is one of the keys in shaping a generation that is aware and responsible for the environment. Recent research emphasizes the importance of instilling an understanding of the relationship between humans and the environment early on to ensure sustainability and conservation of natural resources (Stevenson et al. 2022). By integrating local environmental resources into the IPAS curriculum, students not only learn scientific and social concepts but also develop an awareness of the importance of maintaining the ecosystems around them. The Merdeka curriculum implemented in Indonesia gives schools and teachers the freedom to customize teaching materials according to the local context and students' needs. This opens up opportunities for the integration of local environmental resources in IPAS learning, enabling more relevant and contextualized teaching. This flexibility also provides room for pedagogical innovations that can increase student engagement and motivation in learning.

Research by (Chatzifotiou and Malcolm 2021) shows that local environment-based learning is effective in improving students' understanding of environmental issues and linkages with social aspects. When students are invited to study the environment around them, they can see first-hand the impact of human actions on nature, which increases the relevance of learning and deepens their understanding. An interdisciplinary approach to learning IPAS, which combines concepts from the natural and social sciences, is increasingly seen as important in primary education. According to research conducted by (Mandler, Lichtenberg, and Hofer 2023), this approach allows students to understand the complexity of the real world and how different disciplines are interrelated. By using local environmental resources, students can learn about ecology, economics and culture simultaneously, which enriches their learning experience.

Students who engage in learning that utilizes their surrounding environment tend to show higher levels of engagement. A study by (Freeman, White, and Stedman 2021) found that students who participated in environment-based projects were more

motivated and excited about learning. This was because they felt the material learned had direct relevance to their lives and gave them the opportunity to contribute positively to their community.

Despite its many benefits, there are some challenges in implementing local environment-based learning in primary schools. Research by (Goodson and Andrews 2020)notes that a lack of resources, including access to natural environments and adequate teaching material support, can be a barrier. In addition, teachers often require additional training to effectively integrate environmental materials into IPAS learning. In the context of Merdeka Curriculum, teachers play a role as facilitators who help students connect theory with practice. The study by (Rahayu 2021) shows that teachers who are effective in this role are able to create a learning environment that supports exploration and problem solving. By providing appropriate guidance, teachers can help students develop the critical and analytical skills needed to understand and address environmental issues.

Collaboration between schools and local communities is crucial to the successful implementation of environmentally-based learning. Research by (Iverson and Smith 2022) shows that community involvement can provide additional support in the form of local knowledge, natural resources and learning opportunities outside the classroom. This not only enriches students' learning experience but also strengthens the relationship between school and community. Project-based learning has been proven effective in improving students' environmental literacy. According to (M. Hung, Chen, and Wu 2023), students who engaged in projects related to local environmental issues showed improvement in conceptual understanding as well as practical skills in dealing with environmental problems. This approach allows students to apply the knowledge they have learned directly in a real context.

In the digital age, technology can play an important role in supporting environment-based learning. Research by (Johnson and Brown 2019)found that the use of technology, such as mapping apps or online learning platforms, can help overcome limited access to natural resources and provide tools for more in-depth environmental exploration. These technologies also allow students to share their findings with a wider audience, thus expanding the impact of learning. One of the challenges in environmental-based education is effective evaluation. The study by (Ngai, Mergler, and Mak 2020) emphasizes the importance of developing evaluation tools that can measure not only theoretical knowledge but also pro-environmental attitudes, skills and

behaviors. This holistic evaluation is important to ensure that environment-based learning has a sustainable impact on students.

Research by (Larson and Perrin 2021) shows that environmental education that starts early can have a lasting impact on students' attitudes and behaviors. Students who engage in environment-based learning tend to have higher environmental awareness and are more likely to engage in pro-environmental actions in adulthood. This emphasizes the importance of integrating environmental literacy in the curriculum from primary education. To support the wider implementation of environment-based learning, supportive education policies are needed. According to a report by (UNESCO 2019), policies that encourage the integration of environmental materials in the national curriculum and provide support for teachers and schools are essential. These policies can help overcome implementation challenges and ensure that all students have the opportunity to learn about their environment. In the context of global climate change and environmental degradation, local environment-based learning in primary schools is becoming increasingly relevant. Research by (Anderson, Jones, and Horn 2022) emphasizes that environmental education that focuses on local contexts can help students understand the global impact of local actions. This provides a strong foundation for students to become responsible global citizens and play an active role in environmental conservation efforts.

In this study, the integration of local environmental resources in the social studies curriculum in elementary schools proved to have significant relevance in improving students' environmental literacy. According to (Pennington, Hall, and Stevens 2021), the use of local context in learning allows students to link theoretical knowledge with practical experiences in their surrounding environment, thus strengthening their understanding of environmental issues. This approach also facilitates more meaningful learning, where students can see the direct impact of human behavior on the environment around them. One of the important findings of this study is the improvement of students' environmental literacy through a learning approach that integrates local resources. The study by (Orr, Helms, and Kim 2020) shows that students who engage in local environment-based learning tend to have a better understanding of environmental concepts, such as natural resource conservation, sustainability and the impact of climate change. This approach allows students to apply the knowledge they gain in the classroom in real-life situations, which in turn increases their environmental awareness.

This research also highlights how the interdisciplinary approach, which combines social and natural sciences in the social studies curriculum, can enrich student learning. According to (Gilbert and Sanders 2022), the interdisciplinary approach allows students to understand the complex relationship between humans and the environment from multiple perspectives, both scientific and social. This not only deepens their understanding of environmental issues, but also develops the critical and analytical thinking skills needed to evaluate various solutions to environmental problems. The use of local environmental resources as learning resources in the social studies curriculum has been proven effective in providing authentic learning experiences for students. A study by (Choi and Lee 2023) showed that students who learn through exploration of their local environment tend to be more engaged in the learning process and more motivated to understand the material. In addition, the use of local resources also allows students to develop observation and investigation skills, which are important in environmental education.

The findings of this study indicate that the role of teachers is crucial in integrating local environmental resources into the social studies curriculum. According to (L. Smith and Taylor 2019), teachers who are able to connect subject matter with local contexts not only increase the relevance of learning, but also help students build connections between academic knowledge and their daily experiences. Teachers who have in-depth knowledge of the local environment and strong pedagogical skills can create more meaningful and impactful learning experiences for students. This research also identifies the importance of local community involvement in supporting environment-based learning. According to (Brown and Robinson 2020), collaboration between schools and communities can provide additional resources, such as local information and access to natural sites, that enrich students' learning experiences. In addition, community involvement also strengthens the relationship between school and community, creating a wider network of support for environmental education.

While there are many benefits to this approach, the research also revealed some challenges in implementing the integration of local environmental resources in primary schools. For example, a study by Harris et al. (2021) found that lack of relevant teaching materials and time constraints are often barriers for teachers in integrating local resources into social studies learning. However, these challenges can be overcome with more intensive training for teachers and the development of teaching materials that are more appropriate to the local context. Evaluation of learning that uses local context is also a focus in this study. According to Thompson and Evans (2022), evaluation that

considers the local context can provide a more accurate picture of students' understanding and their ability to apply the knowledge gained. This approach also allows teachers to identify areas where students may need further support in understanding complex environmental issues.

Another finding of this study is the long-term impact of the local environment-based learning approach on students' attitudes towards the environment. Research by (Larson, Bowers, and Green 2023) shows that students who engage in learning that integrates local environmental resources tend to have more positive attitudes towards environmental conservation and are more likely to engage in pro-environmental actions in the future. This suggests that this approach is not only effective in the short term but also has the potential to shape students' behavior in the long term. Based on the findings of this study, it is important to develop educational policies that support the integration of local environmental resources in the social studies curriculum. According to (UNESCO 2021), policies that encourage the use of local contexts in education can enrich students' learning experiences and ensure that the learning they receive is relevant to their daily lives. In addition, these policies can also support the long-term goal of forming a generation that is more aware and responsible for the environment.

The approach of integrating local environmental resources in the social studies curriculum in basic education provides an opportunity for students to develop deeper and more relevant environmental literacy. The concept of Place-Based Education (PBE) has developed as one of the most effective methods to connect students with their surrounding environment. According to (M. H. Hung, Wang, and Chen 2020), PBE allows students to study environmental issues in a local context, making them more aware of issues that directly impact their community. By using local resources, students not only learn about environmental theories, but also experience first-hand the impact of human and environmental interactions in their own region, making their understanding more applicable and meaningful.

In addition, research in recent years has shown that implementing environmental literacy through the social studies curriculum can develop students' critical thinking and social responsibility. For example, (Nelson, Burgess, and McKinney 2021) argued that environmental literacy involves not only knowledge, but also attitudes and skills that support sustainable action. When students are invited to understand the interaction between the environment and human behaviour in a local context, they can recognize the impact of their daily actions on the environment. In the social studies curriculum, the integration of environmental literacy helps students to

understand that environmental problems are not only the responsibility of certain parties, but require the participation of all individuals in maintaining its sustainability.

Community-based approaches also play an important role in helping students understand social and environmental issues better. According to (Santos, Jones, and Garcia 2022), Community-Based Learning (CBL) supports collaboration between students and local communities in solving environmental problems together. This approach not only improves students' academic skills, but also social skills, such as empathy, cooperation, and communication. Through CBL, students learn how to actively participate in environmental conservation efforts and apply their social studies knowledge in real activities, such as local environmental projects or school greening programs.

The long-term effects of integrating local resources into the social studies curriculum can also be seen in changes in students' attitudes and behaviors towards the environment. According to (Chawla and Derr 2023), education that focuses on local environmental issues helps students form a strong ecological identity, where they feel an emotional attachment and responsibility towards nature. This identity formation has the potential to shape sustainable pro-environmental behavior in the future, as students develop a deeper understanding of how they can contribute to environmental conservation through daily actions. This research shows that integrating local resources in basic education not only improves environmental literacy, but also has a positive long-term impact on students' lives as responsible citizens.

In addition, an interdisciplinary approach involving local resources also enriches students' learning experiences, increases engagement and encourages critical thinking. Through a curriculum that combines various disciplines such as geography, science and social studies, students have the opportunity to understand the complexity of environmental issues as a whole. As stated by (Li and Zheng 2017), an interdisciplinary approach in basic education helps students build the analytical and critical skills needed to understand the relationship between humans and the environment. With this holistic understanding, students are better equipped to face future environmental challenges and become change agents capable of implementing sustainable solutions.

This research generalizes that the integration of local environmental resources into the social studies curriculum in primary schools can significantly improve students' environmental literacy in a contextual, relevant and meaningful way. Through an interdisciplinary approach that combines scientific and social aspects, students can

understand the complex relationship between humans and the environment around them. Thus, they not only learn theoretical concepts, but also develop the critical awareness and practical skills needed to face future environmental challenges. In addition, this research shows that the involvement of local communities, the use of natural resources as learning resources, and the role of teachers as facilitators who are able to link teaching materials with the local context are key factors in the successful implementation of this approach. Despite challenges, such as limited resources and teaching material support, the findings confirm that local environment-based education not only has a positive impact on students' understanding and engagement but also has long-term potential to shape sustainable pro-environmental behavior. Educational policies that support this integration are needed to ensure that the benefits can be felt by all students, as well as to prepare future generations who are more aware and responsible for their environment.

D. Conclusions

This study is that the integration of local environmental resources into the social studies curriculum at the primary school level is an effective educational strategy to improve students' environmental literacy. Through this approach, students can connect theoretical learning with practical experiences relevant to their daily lives, ultimately strengthening their understanding and awareness of environmental issues. An interdisciplinary approach that combines social and natural sciences in a local context allows students to see the connection between human behavior and its impact on the environment, so that they not only learn about the environment passively, but also develop the critical and analytical skills needed to find solutions to environmental problems. The role of the teacher in linking teaching materials with local resources, as well as the involvement of the community in supporting the learning process, are important elements that determine the success of implementing this approach. Despite challenges such as limited resources and teaching material support, this research shows that with the right policy support, this approach can not only improve students' understanding of the environment, but also shape more proactive attitudes and behaviors in environmental conservation in the future. Therefore, this study makes a significant contribution to the development of environmental education in primary schools and offers insights that can be used to improve curricula and educational practices in various contexts.

The recommendation from this study is that the social studies curriculum in primary schools should more intensively integrate local environmental resources to improve students' environmental literacy. More in-depth training for teachers is needed so that they are able to effectively link teaching materials with local contexts. In addition, community involvement and the development of relevant teaching materials should also be encouraged to support this learning process. Clear educational policy support is essential to ensure that this integration can be widely and sustainably implemented, and to prepare students to become more aware and responsible individuals for their environment.

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