



# Assessing Needs for Quality Improvement: A Study of Nature-Based Education Principles (Sekolah Alam Way) at Saga Lifeschool, Indonesia

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**Abstract:** Nature-based education offers a transformative approach to sustainable education by integrating natural environments and sustainability principles into active learning experiences. In Indonesia, Saga Lifeschool, along with over 200 nature-based schools under Jaringan Sekolah Alam Nusantara (JSAN), exemplifies this model through its "Sekolah Alam Way" (SA WAY) system. This system emphasizes holistic education aligned with sustainable development goals and the core values of Pancasila, including environmental stewardship, community spirit, and global diversity appreciation. This research aims to assess the quality improvement needs in SA WAY's implementation of nature-based education, focusing on enhancing educational practices that promote academic, ethical, social, and environmental growth. The study applies theories such as experiential learning, place-based education, and embodied cognition to evaluate how hands-on activities—such as outdoor projects, environmental conservation, and community engagement—support cognitive, ethical, and social development. Findings indicate that while SA WAY effectively instills these values, improvements in resources, teacher training, and outdoor learning infrastructure are needed to further enhance educational quality and sustainability. The research highlights the importance of continuous development in these areas to ensure the long-term success of nature-based education and its alignment with sustainable practices.

**Keywords:** Nature-based Education, Sustainable Education, Sekolah Alam Way

## Introduction

Nature-based education is becoming an increasingly vital approach in the context of sustainable education, emphasizing the integration of natural environments and principles of sustainability into the learning process. In Indonesia, Saga Lifeschool is a key institution promoting this approach, together with 200 other nature-based schools across the country that are part of the organization JSAN (Jaringan Sekolah Alam Nusantara). The Sekolah Alam Way (SA WAY), as the system used by Saga Lifeschool to manage and ensure the

quality of education, is designed to uphold principles that emphasize holistic and sustainable education. This research aims to assess the quality improvement needs in the application of nature-based education at SA WAY, focusing on the alignment of educational practices with sustainable development goals and Pancasila values (Li, 2022).

The focus on nature-based education at SA WAY is significant as it strengthens Pancasila values such as community spirit, environmental stewardship, and respect for global diversity. These values are deeply embedded within the educational philosophy of SA WAY, which emphasizes the importance of nurturing students who are not only academically proficient but also ethically, socially, and environmentally responsible (Noronha, 2021). The integration of these values into everyday learning experiences is seen as an essential element in fostering a well-rounded generation of students who can contribute positively to both local and global communities.

SA WAY's educational model is grounded in the principles of holistic education and sustainable practices, with a strong commitment to environmental sustainability and social responsibility. As outlined in the school's vision and mission, these principles are reflected in the school's curriculum and activities. SA WAY's approach to education combines traditional subjects with practical, hands-on learning experiences in natural settings, allowing students to engage directly with their environment and community (Russell, 2023). By immersing students in this context, the school aims to cultivate environmentally-conscious individuals who are prepared to face the challenges of the future.

This study draws on the most current and relevant educational theories to assess the impact and quality of nature-based education at SA WAY. The theory of experiential learning (Kolb, 2014) offers a foundation for understanding how learning occurs through direct experiences. This theory emphasizes the importance of reflection and active experimentation in shaping students' understanding, making it highly relevant for nature-based education where students engage in hands-on, real-world activities. Cultural-historical activity theory (Engeström, 2015) also provides a framework for understanding how learning is situated within social contexts, emphasizing the interconnectedness of the individual, the environment, and the community. This theory aligns with SA WAY's focus on community engagement and environmental responsibility, where students learn by interacting with and contributing to their surrounding world (Zhang, 2022).

Furthermore, theories of environmental education highlight the role of nature as a key tool for developing ecological literacy and sustainable behaviors. According to Kahn & Kellert (2002), children who engage in nature-based education develop a deeper connection with the environment, leading to more sustainable practices in adulthood. Additionally, global citizenship education (GCE), as defined by UNESCO (2014), stresses the importance of fostering students who are aware of global issues and possess the skills to engage with diverse perspectives, which is a core element of SA WAY's curriculum.

Additionally, multiple intelligences theory, particularly the concept of naturalist intelligence (Gardner, 2011), is central to SA WAY's pedagogical approach. This theory emphasizes the ability to recognize, categorize, and understand the natural world, fostering environmental awareness and sustainable behaviors. Naturalist intelligence is nurtured

through activities such as outdoor exploration, gardening, and environmental projects that allow students to engage with the world around them in meaningful ways.

The integration of these educational principles with Pancasila values creates a comprehensive learning environment that supports both individual and collective development (Ahmad, 2019). Pancasila's emphasis on community spirit, noble character, and critical thinking aligns with the goals of nature-based education, where students are encouraged to think critically about their relationship with nature, society, and the world at large.

By exploring these theories and integrating them into the curriculum, this study at SA WAY aims to provide a comprehensive assessment of the school's educational practices. The research will focus on identifying strengths and areas for improvement, with the ultimate goal of guiding quality improvements in nature-based education (Morrison, 2020a). This will contribute to the broader mission of creating a sustainable and inclusive learning environment that reflects the values of Pancasila and prepares students for responsible global citizenship.

## Methodology

This research used a case study approach to assess the needs for quality improvement in implementing nature-based education at Saga Lifeschool. The primary goal was to gather insights into how the school applied principles of nature-based education and identify areas for enhancement. The research focused on identifying the ways in which the integration of nature into the educational process benefited the students and highlighted potential challenges the school might face in enhancing this approach.

The data collection methods involved various strategies to ensure a comprehensive understanding of the implementation of nature-based education. These methods included direct observations, interviews with teachers, and surveys of parents, each of which contributed to a holistic view of the educational environment. Observations allowed the researchers to assess classroom activities, outdoor sessions, and overall school practices. Interviews with teachers provided qualitative insights into teaching methods, while surveys with parents provided feedback on their children's academic progress and emotional development as a result of nature-based education. In total, data was collected from 13 students, 13 pairs of parents, and 3 teachers.

Additionally, a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) helped identify the internal and external factors influencing the school's educational effectiveness. This analysis evaluated both the advantages and challenges that arose from integrating nature into the curriculum, providing a balanced view of the school's educational practices.

The research was guided by key principles outlined in SA WAY: Realizing a Sustainable and Inclusive School, which provided a framework for understanding the school's vision, mission, and values. These principles shaped the holistic approach that integrates academic excellence with moral values and environmental sustainability. The study also emphasized how these values aligned with nature-based education by fostering an atmosphere of respect for the environment and a commitment to sustainable

development. These principles formulated the foundation for the research framework, helping to assess how effectively nature-based education fostered a sense of responsibility and critical thinking among students.

Supporting research has emphasized the positive impacts of nature-based education on children's development. For instance, a study by Miller et al. (2022) investigated the perspectives of educators on nature-based play and learning in South Australian primary schools. The study found that integrating nature into education led to improved health and wellbeing for students, though it also highlighted some challenges, such as limited resources and professional development. These findings reinforce the need to overcome barriers and enhance enablers to promote the benefits of nature-based education at Saga Lifeschool.

Similarly, a systematic review by Johnstone et al. (2022) on nature-based early childhood education (ECE) revealed that exposure to nature positively influenced children's social, emotional, and cognitive development. While the evidence was of low certainty, the review highlighted that nature-based education was linked to better self-regulation, social skills, and emotional development. These findings support the research at Saga Lifeschool, underscoring the potential benefits of nature-based education in enhancing children's development across multiple domains.

Both studies align with the research goals at Saga Lifeschool, indicating that while nature-based education has significant potential, further efforts are needed to address barriers and optimize its implementation for greater impact on student outcomes.

## **Data Collection Methods**

### **1. Observations:**

Observations were conducted to assess the practical application of nature-based education through a variety of school activities, ranging from standard classroom lessons to outdoor learning sessions. These observations focused on how students interacted with natural elements in both structured and unstructured settings. Specific activities such as gardening projects, outdoor science experiments, and field trips were documented to evaluate how these activities contributed to students' cognitive, emotional, and social development. Additionally, students' behaviors and engagement levels during nature-based activities were compared to those in traditional classroom settings, providing valuable insights into the effectiveness of the nature-based approach.

### **2. Interviews:**

Teachers were interviewed to gather their perspectives on the integration of nature-based education. The interviews explored the strategies teachers employed to incorporate nature into their lessons, as well as the challenges they encountered in implementing such educational experiences. The discussions also delved into teachers' views on the impact of outdoor education on students' academic achievements, personal growth, and environmental awareness. Teachers were further asked to reflect on the support provided by the school in facilitating nature-based education and how they collaborated with colleagues to create interdisciplinary lessons that incorporated

natural elements. Parents were surveyed to evaluate how the nature-based education model influenced their children's learning experiences. Surveys examined parents' perceptions of how well their children understood academic subjects through nature-based learning and how these activities affected their attitudes toward sustainability and environmental stewardship. The feedback provided important insights into the broader community's perception of the school's educational practices and parents' awareness of the curriculum's benefits.

### 3. SWOT

#### Analysis:

A SWOT analysis was conducted with the school's curriculum team to assess both internal and external factors impacting the success of nature-based education. The analysis identified internal strengths, including the school's strong commitment to environmental sustainability and its dedicated teaching staff. Weaknesses were also revealed, such as the insufficient outdoor resources and materials for hands-on learning. External opportunities were explored, including potential partnerships with environmental organizations, which could further enhance the curriculum. However, threats were identified, such as increasing pressure on academic performance and the need for specialized training for teachers, which posed significant challenges to the effective implementation of nature-based education.

### 4. Integration of Theoretical Frameworks:

- a. The research incorporated several educational theories to assess the impact of nature-based education:
  - Nature-Based Education Theory: This theory emphasizes the value of learning in natural environments, where students engage in hands-on activities that foster critical thinking, problem-solving, and creativity. Studies have shown that nature-based education enhances cognitive development by creating experiential learning opportunities that deepen students' understanding of academic content (Glenberg, 2015; Shapiro & Stolz, 2019).
  - Global Awareness Theory: The research examined how nature-based education promoted global awareness among students. By engaging with environmental issues, students developed an understanding of sustainability challenges that transcend borders. The global perspective fostered by nature-based learning encourages students to develop a deeper understanding of their role in environmental sustainability and to engage in critical thinking about the interconnectedness of human and ecological systems (Kuo et al., 2019).
  - Naturalist Intelligence Theory: Howard Gardner's theory of multiple intelligences was applied to assess how nature-based learning supported the development of naturalist intelligence. This intelligence is characterized by the ability to recognize and categorize natural objects and processes. By engaging with nature, students enhanced their naturalist intelligence, which contributed to a greater appreciation for the environment and an increased sense of responsibility toward its conservation (Gardner, 2011).



## Data Analysis

- Data from observations and interviews were transcribed and analyzed thematically. Thematic analysis allowed researchers to identify recurring patterns and trends in how nature-based education was implemented at Saga Lifeschool. This method also helped to reveal the challenges faced by teachers and students and the ways in which nature-based education shaped the school's academic environment.
- Thematic coding was applied to categorize responses from interviews and surveys, aligning them with the theoretical frameworks of embodied cognition, global awareness, and naturalist intelligence. This coding highlighted how nature-based education influenced students' academic achievement, their cognitive and social development, and their environmental consciousness.

## Theoretical Frameworks

- SA WAY Vision, Mission, and Values: The principles of SA WAY shaped the study's objectives and provided a guiding structure for assessing how the school's curriculum aligned with sustainable educational practices. This alignment ensured that the students' academic experiences fostered both intellectual growth and a commitment to environmental responsibility.
- Nature-Based Education Theory: The research examined how nature-based education, when integrated into school curricula, facilitated active learning. Educational activities like gardening, ecological studies, and field trips encouraged deeper engagement with academic material and promoted environmental stewardship.
- Global Awareness Theory: The study explored how the school's nature-based curriculum broadened students' understanding of global environmental issues and sustainability, preparing them for the challenges of a rapidly changing world.
- Naturalist Intelligence Theory: By engaging in nature-based learning activities, students developed their naturalist intelligence, which enhanced their ability to observe, understand, and care for the natural world. This, in turn, influenced their attitudes towards environmental preservation and sustainable practices.

## Result and Discussion

### *Result*

The study on nature-based education at **Sekolah Alam Way (Saga Lifeschool)** aimed to assess the effectiveness of the school's curriculum, identify areas for improvement, and gather recommendations to enhance its implementation. The data was collected through a combination of teacher interviews, a parent survey, and observations of classroom activities. The results revealed valuable insights into the strengths, challenges, and potential for growth in the school's nature-based education program.

### *1. Teacher Perspectives*

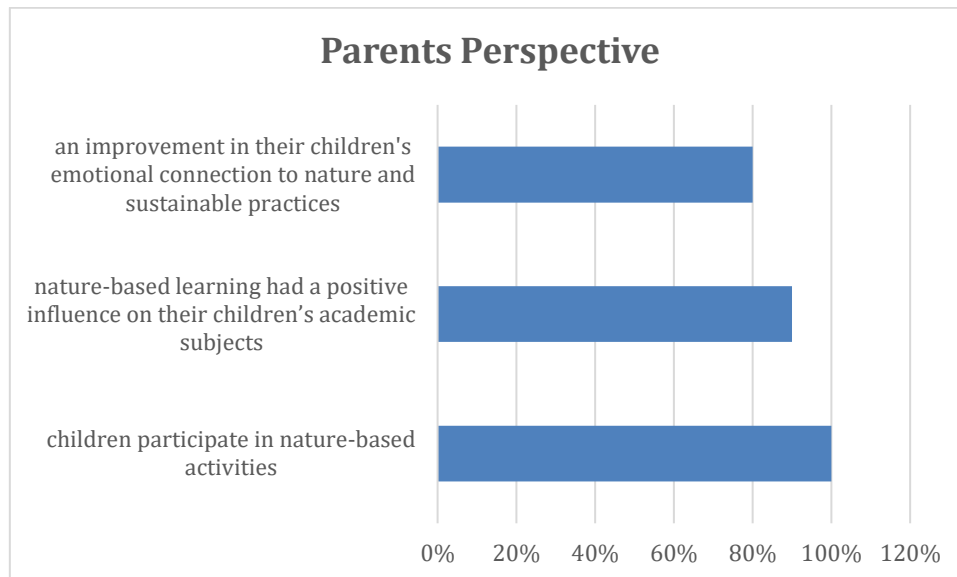
Teachers at Saga Lifeschool strongly advocated for nature-based education, emphasizing its role in promoting hands-on learning and fostering a deep emotional and academic connection to the natural world. Teachers integrate nature across multiple subjects, using outdoor spaces for experiential learning, such as nature walks and

environmental observations. These activities were highlighted as effective in engaging students and enhancing their academic performance by making lessons more relatable. The teacher interview also revealed that nature-based education has positively impacted students' emotional and social development. Students demonstrated increased empathy, patience, and cooperation, fostering an environment of collaboration. Additionally, the students showed growing awareness of environmental issues, with many adopting sustainable practices such as recycling and planting. However, challenges were noted, including limited outdoor resources, weather dependency, and a need for more funding and professional development to enhance nature-based pedagogy. Teachers expressed the desire for better training on utilizing local natural resources and improvements in outdoor spaces to support their curriculum.

## 2. Parent Perspectives

The parent survey revealed strong support for the nature-based education approach at Saga Lifeschool. All respondents (100%) affirmed that their children participate in nature-based activities, with many indicating that these activities positively impacted their children's academic engagement and personal development. A significant majority (90%) of parents observed that nature-based learning had a positive influence on their children's academic subjects, and 80% noted an improvement in their children's emotional connection to nature and sustainable practices.

**Diagram 1.** Parents Perspective



**Source:** Field Survey, 2024

Parents also expressed satisfaction with the current nature-based education initiatives, although they suggested improvements in environmental initiatives and communication between parents and educators. This feedback underscores the importance of parental involvement in supporting the success of nature-based education.

### 3. *Observational Checklist Analysis*

The curriculum emphasizes sustainability, environmental stewardship, and emotional development. Students engage directly with nature through hands-on projects using natural materials, promoting exploration, critical thinking, and problem-solving skills. The observational data suggested that these experiences foster teamwork and a strong sense of environmental responsibility among students, aligning with the school's mission to cultivate environmental awareness.

### *Discussions*

1. **Importance of Nature-Based Education in Building Students' Character:** One of the most significant findings of this study is the role of nature-based education in shaping students' character, particularly in developing emotional intelligence and environmental responsibility. The integration of nature into the curriculum offers students a unique opportunity to connect with the world around them, fostering empathy for living beings, and a sense of responsibility toward the environment. The school's emphasis on environmental stewardship, such as recycling and conservation, encourages students to adopt sustainable practices in their daily lives (Koranteng, 2024). This holistic approach goes beyond academic learning to include moral and social development, which is crucial in the formation of well-rounded individuals. As evidenced by the teacher interviews and parent survey, nature-based education is not only beneficial for academic achievement but also plays a pivotal role in emotional and social growth. Through collaborative projects and environmental challenges, students learn teamwork, patience, and how to navigate complex problems. These are essential skills that build character and prepare students for future challenges in both their personal and professional lives.
2. **Areas for Improvement:** Despite the numerous strengths identified in the study, several areas for improvement were noted, particularly in terms of resources and professional development. Teachers highlighted the need for additional outdoor resources, such as materials for hands-on learning and improvements to outdoor spaces that can withstand various weather conditions. The lack of funding to enhance these resources was a common concern. Furthermore, there was a clear demand for more specialized teacher training in nature-based pedagogy (Morrison, 2020b). Teachers expressed the need for professional development opportunities to better integrate local natural resources into the curriculum and to keep up with the latest teaching strategies in environmental education. Providing ongoing training would not only empower teachers but also ensure that the nature-based education program remains innovative and effective. The increasing pressure on academic performance was also seen as a threat to the effective implementation of nature-based education. While many teachers and parents are supportive of nature-based learning, balancing this with the demands of standardized testing and traditional academic requirements remains a challenge. The school must find ways to integrate nature-based education into a more comprehensive academic framework that aligns with broader educational goals while maintaining its focus on sustainability and character development.



3. **Stakeholder Collaboration and Community Engagement:** The study also found that collaboration among teachers across subjects was a strong point of the school's approach. However, there is an opportunity to further strengthen this collaboration and increase community engagement. Parents showed high levels of satisfaction and support for the nature-based education approach but suggested improvements in communication between the school and families. This feedback underscores the importance of fostering a more inclusive learning environment that actively involves parents and the wider community in the educational process. The school can further explore partnerships with local environmental organizations, which would not only provide additional resources and expertise but also enrich students' learning experiences. Such collaborations could also address some of the resource limitations identified in the study, offering fresh perspectives and opportunities for students to engage in real-world environmental projects.

## Conclusion

Nature-based education is an essential approach in sustainable learning, focusing on integrating natural environments and sustainability principles. At Sekolah Alam Way (SA WAY), this approach fosters holistic student development, emphasizing academic, ethical, social, and environmental growth. This research aims to assess the quality improvement needs of nature-based education at Saga Lifeschool, where SA WAY's principles are implemented.

The school integrates hands-on activities like outdoor projects and environmental initiatives, allowing students to engage with nature directly. This promotes environmental awareness, teamwork, and problem-solving skills, helping students develop a strong sense of responsibility. The theory of embodied cognition supports this approach, as physical engagement with nature enhances cognitive development, making learning more impactful (Glenberg, 2015). Engaging with nature enhances learning by fostering cognitive, physical, and psychological restoration, which can improve critical thinking and memory retention (Kuo et al., 2019).

Additionally, global citizenship education (GCE) emphasizes the importance of fostering students who are aware of global environmental issues and cultural diversity. This aligns with the school's mission to cultivate students who understand their role in a global community and who are equipped to tackle global challenges (UNESCO, 2014). GCE encourages respect for cultural differences and environmental sustainability, promoting an inclusive mindset among students.

Furthermore, theories of place-based education (Sobel, 2004) highlight the value of learning through direct interaction with local environments. By placing students at the heart of their local ecosystems and communities, the curriculum fosters not only environmental stewardship but also a sense of belonging and responsibility toward one's immediate surroundings. This theory supports the hands-on, experiential learning practices used at SA WAY, where students participate in environmental conservation and community engagement projects.

While the school excels in its environmental focus, improvements are needed in resource availability, teacher training, and outdoor learning spaces to further enhance nature-based education. This research provides a foundation for ongoing improvements, positioning Saga Lifeschool as a model for other institutions to integrate nature-based principles into their educational frameworks.

Based on the findings of the study, several recommendations are made to enhance the quality of nature-based education at Saga Lifeschool, as well as in the broader context of education in Indonesia:

1. **Expand Outdoor Resources and Spaces:** It is recommended that Saga Lifeschool, as well as other nature-based schools in Indonesia, invest in additional outdoor materials and enhance outdoor spaces to support hands-on learning in all weather conditions. This could include the development of covered learning areas, outdoor classrooms, and more varied natural materials for students to explore. By doing so, schools can foster more engaging and inclusive learning environments that enable students to interact directly with nature, regardless of environmental challenges.
2. **Provide Professional Development:** Saga Lifeschool should continue to offer ongoing professional development for teachers, ensuring that they are well-equipped to integrate local natural resources into lessons and develop innovative strategies for nature-based teaching. This approach will benefit the school in maintaining high educational standards while fostering a deeper understanding of sustainability. In the wider context of education in Indonesia, it is crucial to provide teachers across the country with continuous training on nature-based education to ensure that this approach becomes more widespread and effective.
3. **Increase Collaboration with Environmental Organizations:** Establishing partnerships with local environmental organizations can enrich the nature-based curriculum by providing students with real-world experiences. Collaboration with such organizations can also help acquire resources that strengthen the learning process. This initiative can be expanded to other schools in Indonesia to improve environmental education nationwide and provide students with practical insights into sustainability and environmental stewardship.
4. **Enhance Communication with Parents:** To ensure greater community involvement in nature-based education, Saga Lifeschool should enhance its communication strategies with parents. This can include organizing workshops, environmental initiatives, and providing regular updates on students' progress in nature-based projects. Broader engagement with parents across Indonesia can contribute to a stronger connection between the school and the home, fostering a shared responsibility for students' environmental education and sustainability awareness.
5. **Balance Nature-Based Education with Academic Standards:** It is essential for Saga Lifeschool, and for Indonesian education in general, to balance nature-based education with the broader academic framework. By aligning nature-based learning goals with national academic standards, schools can ensure that students receive a well-rounded education that incorporates both sustainability and academic excellence. A holistic approach to education will help students develop both the critical thinking skills and

the environmental consciousness necessary for addressing the complex challenges of the future.

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