

ANALYSIS OF THE APPLICATION OF LOCAL WISDOM OF NIAS IN PROBLEM-BASED LEARNING: A LITERATURE REVIEW WITH A DESCRIPTIVE APPROACH

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Abstract

Local wisdom plays a vital role in preserving cultural identity, fostering social harmony, and strengthening a community's sense of belonging. Within the educational context, integrating local wisdom into learning activities creates meaningful connections between theoretical knowledge and the cultural realities experienced by students in their daily lives. This approach not only promotes contextual learning but also nurtures students' appreciation of their heritage. This article explores the incorporation of Nias local wisdom into the Problem-Based Learning (PBL) model as a strategy to enhance both academic achievement and character formation. The Nias community possesses rich traditions, social values, and problem-solving practices rooted in cooperation, respect, and responsibility. By embedding these elements into the PBL framework, students are encouraged to engage in authentic learning experiences that mirror real-life challenges while reflecting their cultural identity. The findings show that the integration of Nias local wisdom within PBL significantly improves students' cognitive, affective, and social competencies. Students demonstrate increased motivation, collaboration, and critical thinking, while also developing empathy and respect for cultural diversity. Moreover, this approach enriches the learning environment by linking education to the community's cultural context. Consequently, the application of local wisdom in education not only produces academically competent learners but also individuals who are culturally grounded and socially responsible.

Keywords: *Local Wisdom; Nias Culture; Problem-Based Learning; Character Education; Cultural Integration; Contextual Learning; Student Competency*

A. Introduction

Education is the fundamental foundation in shaping the character and competencies of individuals who are capable of facing the

increasingly complex challenges of the times. In Indonesia, with its rich and diverse cultural heritage, education must be able to embrace this diversity and integrate the local



values present in society. This is crucial as education is not only a process of transferring knowledge but also a process of shaping character, identity, and social awareness in students. As a country with over 300 ethnic groups, Indonesia possesses a wide variety of local wisdom that is an invaluable cultural heritage and must be preserved, one of which is the unique local wisdom of Nias.

Local wisdom refers to the knowledge, values, norms, and practices that are passed down through generations and accepted by the community as part of their identity (Telaumbanua, 2017). These values encompass not only customs and traditions but also knowledge about the environment, social life, and wise ways of living to face daily life challenges. In Nias society, local wisdom includes principles such as *fabanuasa* (brotherhood) that transcends blood relations and ethnicity, as well as *fondrakö* (customary law) which governs the entire life cycle of the community. This local wisdom also includes values of justice, mutual cooperation, and respect for nature, which form the foundation of Nias life (Zaluchu, 2020a).

One of the most significant challenges facing education in Indonesia is balancing the development of academic knowledge with the preservation and appreciation of local cultural heritage. As globalization and

modernization accelerate, there is a risk that students may become detached from their cultural roots, which can undermine cultural identity and social cohesion. In this context, Problem-Based Learning (PBL) emerges as a promising educational approach that can address these dual objectives.

PBL is a student-centered learning model in which learners actively engage in solving real-life problems that are meaningful and relevant to their own experiences. This approach encourages students to take responsibility for their learning, apply critical thinking, and develop problem-solving skills while connecting theoretical knowledge to practical contexts. By integrating local cultural values into PBL scenarios, students are able to see the relevance of their academic studies within the framework of their own communities. For example, incorporating local traditions such as the Nias Hombo Batu ritual or regional environmental practices into problem-solving activities allows students to explore complex social and cultural issues while learning scientific or social concepts.

Research indicates that PBL enriched with local wisdom not only improves cognitive and analytical skills but also strengthens social and cultural awareness, promoting respect for diversity and encouraging students to actively participate in preserving cultural heritage (Matsun et al.,



2020). In addition, this approach fosters the development of 21st-century skills, including collaboration, communication, creativity, and ethical decision-making, all of which are essential for preparing students to navigate both local and global challenges.

Ultimately, aligning PBL with local wisdom provides a holistic educational framework that integrates knowledge acquisition, skill development, and character formation. This model ensures that students not only excel academically but also grow into socially responsible and culturally literate individuals who can contribute positively to the sustainability and appreciation of Indonesia's diverse cultural landscape.

The implementation of PBL based on local wisdom not only allows students to better understand and apply academic knowledge but also helps them appreciate and preserve their local culture. By integrating Nias local wisdom into PBL, students not only develop cognitive skills but also build a stronger character based on their social and cultural values. For example, the use of the Hombo Batu (stone-jumping) tradition in physics education does not only help students understand the laws of physics but also introduces them to the history and philosophy contained in the tradition (Shofiyah et al., 2019). This creates a deeper and more relevant learning experience,

increasing their emotional connection to their own culture.

Furthermore, education based on local wisdom also has the potential to shape students' character. As reflected in the values of *fabanuasa* (brotherhood) and mutual cooperation, the application of local wisdom in education can help students develop values such as cooperation, solidarity, empathy, and appreciation for diversity. These values are highly relevant in a world that is increasingly interconnected and requires individuals who are not only academically intelligent but also socially and emotionally intelligent (Jumriani et al., 2021).

However, despite the benefits of applying local wisdom in education, its integration into the formal education system in Indonesia still faces several challenges. One of the main challenges is the lack of training and understanding among teachers in designing culturally-based learning. Many teachers have yet to fully comprehend how to effectively connect academic material with local values. Therefore, it is important to develop a curriculum that supports the integration of local wisdom and provide adequate training for teachers to enhance their understanding (Hikmawati et al., 2021).

The main objective of this article is to examine the application of Nias local wisdom in the Problem-Based Learning (PBL) model. This article will discuss how



PBL can be an effective approach to integrating local wisdom values in education, and how this can enhance students' academic competencies while simultaneously shaping their character. This study will also look into the implementation of the Hombo Batu tradition in physics education as a concrete example of integrating local culture into problem-based learning, and will discuss the challenges faced and solutions that can be implemented in the implementation of PBL based on local wisdom.

Moreover, integrating local wisdom into the learning process provides students with opportunities to acquire not only academic knowledge but also a high level of cultural and social awareness, which is increasingly essential in a globalized world where cultural homogenization poses a threat to local identities. By embedding cultural values and practices into educational activities, students are encouraged to understand and appreciate the unique traditions, beliefs, and social norms of their own communities. This approach fosters cultural sensitivity, respect for diversity, and a stronger sense of identity, allowing learners to navigate the modern world without losing touch with their roots.

Learning based on local wisdom can also enhance students' 21st-century skills, including critical thinking, problem-solving,

collaboration, creativity, and communication. For example, using local practices such as the Nias Hombo Batu tradition in Problem-Based Learning (PBL) scenarios encourages students to analyze real-world challenges, discuss potential solutions collaboratively, and apply innovative strategies grounded in cultural context. This not only makes learning more meaningful but also strengthens students' ability to adapt and respond to complex social and environmental issues.

Furthermore, promoting education rooted in local wisdom equips students to actively participate in preserving Indonesia's rich cultural diversity. As students engage with their cultural heritage through learning, they develop a sense of responsibility for sustaining traditional practices and passing them on to future generations. This aligns with broader educational goals of creating individuals who are academically competent, socially responsible, and culturally literate.

In conclusion, integrating local wisdom into learning processes is not merely an enrichment of the curriculum; it is a strategic approach to holistic education that balances cognitive development with character formation, cultural awareness, and social responsibility. By doing so, students are prepared to thrive in a globalized context while contributing to the preservation and



promotion of Indonesia's unique cultural heritage.

Given this background, this article aims to explore how education based on Nias local wisdom, particularly through the Problem-Based Learning model, can significantly contribute to improving the quality of education in Indonesia. Ultimately, it is hoped that education based on local wisdom can strengthen Indonesian cultural identity while also producing a generation that has strong academic competencies and character.

B. Research Method

This study employs a literature review method using a descriptive-analytic approach to explore the integration of local wisdom, specifically that of the Nias community, within the Problem-Based Learning (PBL) model. This approach allows the researcher to systematically collect, describe, and analyze previous studies and scholarly articles without manipulating variables, thereby providing an objective and comprehensive overview of the current knowledge on this topic. The main objective of this method is to synthesize findings from existing research, identify patterns and theoretical trends, and determine how local wisdom can be effectively applied to enhance both cognitive skills and character development in students.

Data for this study were obtained from various peer-reviewed journals, conference proceedings, and academic publications

focusing on local wisdom-based education, the PBL model, and the incorporation of cultural values into learning processes. Particular emphasis was placed on research examining Nias cultural practices, such as the Hombo Batu tradition, which embodies values of courage, discipline, and mutual cooperation. These values provide a meaningful cultural context that can be incorporated into PBL scenarios, helping students connect academic content with real-world cultural experiences.

The data used in this study were collected from various peer-reviewed journals, books, and conference papers that discuss topics such as local wisdom-based education, PBL model implementation, and cultural integration in learning. Specific attention was given to studies exploring Nias local traditions, such as Hombo Batu (stone jumping), which symbolize courage, discipline, and perseverance values that align with educational goals in character formation. Through this review, the author seeks to understand how these cultural values can be embedded into PBL to enhance student engagement and contextual learning.

The analysis process involved three main stages: (1) identifying and categorizing relevant sources, (2) summarizing key findings and methodologies used in previous studies, and (3) comparing patterns, gaps, and recommendations across the literature.



The discussion includes research showing that local wisdom-based PBL fosters critical thinking, collaboration, and cultural awareness (Lubis et al., 2022). Furthermore, studies such as (Harefa et al. 2024) demonstrate that incorporating Nias cultural practices into learning enhances motivation and moral values among students.

In conclusion, this literature review not only consolidates evidence of the educational value of local wisdom but also identifies the need for further empirical studies to optimize its integration into modern pedagogical models such as PBL, thereby supporting sustainable and culturally grounded education in Indonesia.

C. Results And Discussion

Integration of Nias Local Wisdom into Problem-Based Learning (PBL)

The Problem-Based Learning (PBL) model is an approach that allows students to play an active role in the learning process by solving real-life problems related to their lives. This approach is very suitable for integrating local wisdom, as PBL places students' experiences in their cultural context as a source of problems that can be analyzed and studied. One example of applying Nias local wisdom in PBL is by using the Hombo Batu (stone-jumping) tradition, which is a crucial part of Nias culture.

In physics education, the forces and movements occurring in the Hombo Batu tradition can be used to analyze physical

concepts such as force, velocity, and acceleration. For example, students can study how force works at each phase in this tradition, from running, jumping, and landing. By linking these physics concepts with the cultural phenomena they are familiar with, students can better understand how the laws of physics are applied in their everyday lives. This approach not only enhances students' academic understanding of physics but also strengthens their emotional connection to their local culture. This is in line with the findings of Shofiyah et al. (2019), who stated that applying local wisdom in problem-based learning enriches students' understanding of the subject matter while building pride in their culture.

Analysis of PBL Learning with Nias Local Wisdom

In addition to physics concepts, other social and cultural aspects reflected in Nias local wisdom can also be incorporated into problem-based learning. Social values within Nias society, such as *fabanuasa* (brotherhood) and *fondrakö* (customary law), can be used as a basis for discussing social problems relevant to daily life. For example, the value of *fabanuasa*, which emphasizes solidarity among community members, can be used to develop students' social skills in working together in groups.

Jumriani et al. (2021) found that learning based on local wisdom can enhance students' social skills, such as communication and collaboration abilities. This aligns with the application of the principle of mutual cooperation in PBL, where students are



taught to work together in groups to solve problems. PBL based on local wisdom allows students to develop social skills, such as empathy and cooperation, which are core values in Nias social life.

Research by Ramdiah et al. (2020) also supports the importance of integrating local wisdom into education to enhance both academic and social skills. In this regard, Nias local wisdom not only contributes to academic mastery but also serves as a means of shaping students' character, particularly in terms of the social values taught by the Nias community.

Application of Local Wisdom in Character Building

Nias local wisdom plays a significant role in the formation of students' character, especially in developing their social and cultural awareness. As previously mentioned, Nias society highly values solidarity, social harmony, and managing relationships among individuals. This is reflected in the principles of mutual cooperation and deliberation, which can be integrated into problem-based learning. By leveraging these social values, PBL can create opportunities for students not only to develop academic skills but also to build their character.

The application of local wisdom in PBL can help students become more responsible, socially aware, and capable of working together to achieve common goals. For example, the value of deliberation, which emphasizes the importance of discussion and consensus in decision-making, can be

applied in PBL through group activities that require students to discuss and collaborate in solving problems. This teaches students to listen to others' opinions, respect differences, and find collective solutions in a broader social context.

Parhan and Dwiputra (2023) demonstrated that character education based on local wisdom can shape students who are not only academically intelligent but also sensitive to local culture and capable of collaborating within society. Therefore, PBL that integrates Nias local wisdom can enrich students' learning experiences and help them become individuals with high social and cultural awareness.

Challenges and Solutions in Implementing PBL Based on Local Wisdom

Although the integration of Problem-Based Learning (PBL) with local wisdom offers numerous advantages, its implementation in educational settings faces several significant challenges. One of the most prominent issues is the limited training and resources available to teachers, which hinders their ability to design culturally responsive learning experiences. Many educators lack sufficient understanding of how to translate local cultural values into instructional content or how to align these values with academic objectives in a systematic and engaging way. As a result, the potential of local wisdom as a meaningful learning foundation is often underutilized.



Another challenge lies in the availability of culturally relevant learning materials and media. Most educational resources tend to be standardized and do not adequately reflect local contexts or traditions. Additionally, time constraints, large class sizes, and limited institutional support further complicate the implementation of PBL rooted in cultural practices.

To address these challenges, several strategic solutions can be proposed. First, it is essential to provide continuous professional development programs that train teachers in curriculum design, cultural integration, and student-centered learning approaches. Second, collaboration between schools, local communities, and cultural experts should be strengthened to co-develop learning materials and authentic case studies based on local issues. Finally, educational policymakers should allocate funding and infrastructure to support innovation in culturally grounded pedagogy. By overcoming these barriers, PBL based on local wisdom can become a powerful tool for fostering critical thinking, creativity, and cultural awareness among students.

Hikmawati et al. (2021) highlighted that optimizing the application of local wisdom within Problem-Based Learning (PBL) requires teachers to possess strong

competencies in designing and implementing culture-based learning models. Teachers play a central role in translating cultural values into meaningful learning experiences; thus, their understanding of both pedagogical principles and local traditions is critical. To achieve this, intensive and continuous training programs must be organized to equip educators with the skills to integrate local wisdom effectively across different subjects and grade levels.

Such training should not only focus on the theoretical aspects of local wisdom but also emphasize practical strategies for curriculum design, lesson planning, and assessment methods aligned with cultural contexts. Through workshops, mentoring, and peer collaboration, teachers can learn to identify local values relevant to their subjects and transform them into engaging learning scenarios that promote critical thinking, collaboration, and creativity.

In addition, the development of teaching materials and learning tools based on local wisdom is essential to support the implementation of PBL. These resources—such as digital modules, case studies, and multimedia content—should reflect authentic local issues and cultural practices, allowing students to connect academic concepts with real-life community experiences. By combining well-prepared



teachers and culturally rich materials, schools can foster an educational environment that not only enhances academic achievement but also strengthens students' cultural identity and social awareness, contributing to the vision of sustainable, inclusive education.

Wilujeng et al. (2019) emphasized the crucial need to develop learning models that integrate local wisdom with modern technology and learning media as part of efforts to create relevant and future-oriented education. The combination of cultural values and technological innovation allows students to engage in meaningful learning experiences that are both contextually grounded and responsive to global developments. By integrating local wisdom, education can maintain its cultural roots, while technology serves as a bridge that enhances creativity, interactivity, and accessibility in the learning process.

In this regard, the government's role is essential in providing adequate support for the development and dissemination of learning materials that reflect local wisdom. This includes designing digital learning resources, multimedia content, and instructional modules that incorporate regional traditions, values, and practices. Moreover, teachers should receive continuous professional development to

strengthen their capacity to integrate technology effectively and meaningfully within culturally relevant pedagogies. Training programs and workshops are needed to help educators design digital-based learning scenarios that highlight cultural identity while fostering students' critical and creative thinking.

Such synergy between local wisdom and modern technology not only enriches students' learning experiences but also supports the realization of sustainable education in Indonesia. By promoting innovation that respects cultural diversity, schools can produce learners who are technologically literate, culturally conscious, and globally competitive. Therefore, integrating local wisdom with modern learning technologies should be viewed as a strategic and transformative step toward building an inclusive and future-ready education system.

D. Conclusion

The integration of Nias local wisdom into the Problem-Based Learning (PBL) model offers substantial benefits for students, encompassing both academic growth and character development. By linking theoretical concepts to local cultural contexts, learning becomes more meaningful and relevant to students' real-life experiences. This approach not only facilitates a deeper understanding of the



subject matter but also nurtures students' respect for and commitment to preserving their cultural heritage. Through exposure to Nias traditions such as mutual cooperation (faluaya), respect for elders, and communal problem-solving students learn essential values that shape their moral and social behavior.

Furthermore, the implementation of PBL based on local wisdom stimulates the development of 21st-century skills, including critical thinking, creativity, collaboration, and communication. Students are encouraged to analyze local issues, discuss possible solutions, and apply innovative thinking grounded in cultural values. Such learning experiences also strengthen their sense of identity and social responsibility, fostering a generation that is not only academically competent but also culturally aware and ethically grounded.

Despite certain challenges such as limited teacher readiness, lack of culturally adapted materials, and time constraints this educational model has proven effective in enriching students' learning outcomes. Therefore, the integration of local wisdom into education, particularly through problem-based and participatory approaches, should continue to be expanded and institutionalized as part of Indonesia's effort to promote contextual, inclusive, and culturally sustainable education.

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