

Maritime-Based Early Childhood Curriculum Development Model

Nuryati ^{1✉}, Prosperity M. Mwila²

¹Universitas Bina Bangsa

²Saint Augustine University of Tanzania

Correspondence Email[✉] : nuryatimamah98@yahoo.com

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Abstract

This research is motivated by the need to explore and utilize the maritime potential within early childhood education (PAUD) institutions in the coastal areas of Banten, ensuring that future generations develop an interest in working within and contributing to the growth of maritime sectors. The study aims to design an early childhood curriculum that is relevant to the needs of maritime communities along the northern coast of Old Banten. The research adopts a dynamic research and development approach, referring specifically to Skilbeck's Dynamic Curriculum Development Model. The stages of this development process include analyzing the situation, formulating objectives, preparing the program, interpreting and implementing the curriculum, as well as conducting monitoring, feedback, assessment, and reconstruction. Data for the study were collected through observations and interviews, and analyzed using descriptive qualitative methods. The research results led to the formulation of a maritime curriculum design that includes key indicators, namely: introducing Indonesia's identity as a maritime nation; building children's knowledge, awareness, and understanding of the sea's potential; developing project-based learning programs; and fostering a sense of national pride and love for the homeland. The learning experiences are designed to be directly relevant to the needs of maritime communities, providing children with hands-on experiences such as fish processing and utilizing seaweed as food ingredients, particularly in the Banten region. This study makes a significant contribution to the development of maritime-based curricula for early childhood education by formulating five essential indicators for curriculum design: the development of marine potential, community-based curriculum content, the application of problem-solving approaches, the cultivation of children's skills, and active community participation. These findings are consistent with the broader educational, social, economic, and environmental implications outlined in the study's conclusions and recommendations.

Keywords : Curriculum,, Children aged,Early, Based, Maritime,Indonesia

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INTRODUCTION

The present study is grounded in a range of previous research highlighting the importance of instilling maritime culture in early childhood education as a means of shaping character and cultivating ways of thinking that encourage bravery and risk-taking, akin to the mindset of a sailor navigating the open seas. This character formation is essential in ensuring that future generations of Indonesian children grow into a brave and critical-thinking nation, able to understand and sustainably utilize the country's rich natural environment for national development (Nurissobakh et al., 2018). Daris (2019) further emphasizes the significance of integrating maritime-based curricula in the era of the Industrial Revolution 4.0, arguing that increasing maritime awareness and knowledge is an unavoidable necessity for Indonesia as it strives to realize its vision as the world's maritime axis. In this context, the development and renewal of curricula, especially for early childhood education, emerge as strategic priorities for achieving national development objectives.

Farchan and Muhtadi (2019) underline that the design of a maritime-focused curriculum should aim to develop marine potential, create curriculum content grounded in community life realities, apply a problem-solving approach, foster life skills among students, and encourage community participation. This perspective is supported by Iskandar and Hasbi (2019), who advocate for quality early childhood education services and government policies that equip young Indonesians with the knowledge, skills, and awareness necessary to face local challenges shaped by geographical and socio-economic characteristics. They argue that effective early childhood education should not only prepare the younger generation to assume their roles in Indonesia as a maritime nation but also instill a sense of awareness of the opportunities and risks posed by the surrounding marine environment.

Indonesia, as the world's largest archipelagic nation, is home to over 95,000 km of coastline and 24.5 million hectares of coral reefs, alongside vast marine resources that remain underutilized (Soemarmi & Diamantina, 2019). As a maritime country strategically positioned with abundant marine wealth, Indonesia's future economic and developmental prospects lie in its ability to manage and harness these resources effectively (Gia Nikawanti & Aca, 2021). Accordingly, Indonesia's long-standing maritime legacy, historically embodied by the phrase "our ancestors were sailors," is now being revived as a national priority to refocus the country's orientation toward the seas and oceans (Lukman Daris, 2019). This requires enhancing the maritime consciousness of future generations by fostering a shared perception of Indonesia's geographical constellation as an archipelagic and maritime nation.

Banten Province, one of Java's westernmost regions and home to Old Banten, possesses significant, yet underexploited, maritime potential. In addition to being a religious tourism hub, Banten is a major fish-producing region (Permana, 2004; DKP-Bintan, 2011). However, many coastal communities in Banten face complex challenges related to the management and utilization of marine resources (Banten Provincial Regulation, 2018). Thanthirige et al. (2016) characterize coastal communities as those whose livelihoods are closely tied to marine-based economies, and data from the Central Statistics Agency (BPS) highlights that in 2020, fishery production in Banten reached 6.2 million kilograms, with Serang City contributing 42.02% of the total (Badan Pustaka Statistik, 2020). Despite this, early childhood education institutions in coastal Banten largely fail to incorporate local maritime potential into their educational programs, resulting in a disconnection between children's learning and the realities of their environment.

Many children still perceive Indonesia predominantly as an agricultural nation, often depicting rice fields and mountains rather than the expansive seas that surround them. This is in stark contrast to Indonesia's vast marine territory, which covers 7.9 million km² and consists of 13,667 islands, earning the country recognition as a maritime nation under UNCLOS 1982 and Law Number 17 of 1985 (Nurissobakh et al., 2018). Nevertheless, this maritime identity has yet to be fully embraced, especially within communities like those in Old Banten. Non-formal education, particularly at the early childhood level, is seen as an effective avenue for nurturing maritime knowledge and values from a young age.

Early Childhood Education (PAUD) plays a pivotal role in national development by improving the quality of future generations, as emphasized by global educational commitments such as the Dakar Framework for Action reported by UNESCO (Rahman, 2009). Education, as one of the pillars of national progress, must enhance participants' capacities not just in academic content but also in values, environmental awareness, and life skills in line with technological and socio-cultural advancements (Sariono, 2013). Sariono (2013) and Farchan and Muhtadi (2019) argue that a well-designed curriculum should be responsive to institutional needs, geographic characteristics, and contemporary national challenges.

Reviving Indonesia's maritime legacy and positioning the country as a global maritime axis are national priorities that require coordinated, multi-sectoral efforts. Integrating maritime education into national curricula at all levels, especially early childhood, is one strategy for achieving this goal (Nurissobakh et al., 2018). The learning process, guided by an effective curriculum, enables teachers to structure lessons that instill maritime values and awareness. Sukmadinata (2008) defines curriculum as a series of planned educational activities aimed at developing competencies and character in children. This view aligns with Olivia (1982), who characterizes curriculum as a dynamic plan encompassing all experiences provided under teacher guidance, and with F. lise Chamisijatin (2020), who sees curriculum as a structured program aimed at achieving specific learning objectives. Sanjana (2015) further adds that the curriculum has evolved from merely a list of subjects to encompassing students' entire learning experiences inside and outside the classroom.

Despite various curriculum reforms, the content often fails to adequately address the diverse environmental and socio-economic realities of students. As Basari (2004) argues, curriculum content should prepare learners to engage with and develop their local potential. Therefore, education and learning activities should serve to equip students with the competencies needed for adult life, as stipulated in the 2013 Curriculum guidelines and Law No. 20/2003, which stress the importance of productive, creative, innovative, and emotionally intelligent learning (F. lise Chamisijatin, 2020).

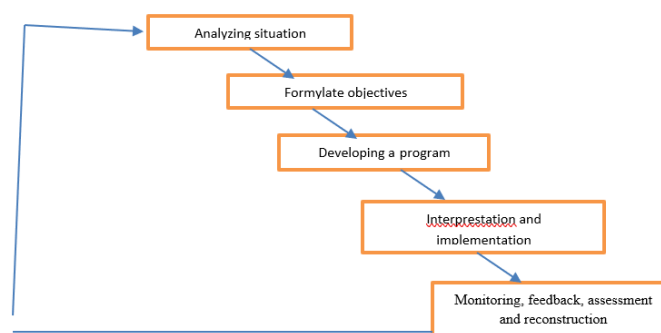
The lack of maritime content in PAUD institutions along Banten's coast has led to a generation with limited interest in pursuing livelihoods in marine-based sectors, contributing to rising unemployment, particularly in the wake of mass layoffs during the COVID-19 pandemic. As reported by BPS, Banten's open unemployment rate reached 10.64% in August 2020, marking a 2.53% increase from the previous year (Badan Pustaka Statistik, 2020). This situation highlights a mismatch between educational outcomes and the skillsets required for life in coastal environments (Saputra & Rahayu, 2015). As such, there is a pressing need to develop a Maritime-Based Early Childhood Curriculum that fosters national and industrial interest in maritime affairs.

In designing such a curriculum, it is essential to align with national educational goals, children's developmental stages, local environmental contexts, and contemporary advancements in knowledge, technology, and culture. Previous studies have outlined key indicators for a maritime curriculum, including: 1) developing marine potential; 2) curricular content reflecting community life; 3) problem-solving approaches; 4) student skill development; and 5) community participation (Prasetia et al., 2024). Supporting this, SAMAD (2024) highlights the importance of project-based learning models rooted in maritime culture to foster environmental awareness in young learners. Meanwhile, Nuryati et al. (2023) propose the development of children's storybooks that cultivate maritime literacy and a maritime spirit in early childhood. While these studies share common objectives, this study introduces a unique feature by providing children with direct, project-based experiences in processing fish and seaweed into food products, tailored to the cultural context of the Banten region.

RESEARCH METHOD

The method used in this study is Research and Development (R&D), referring to curriculum development. The Dynamic model emphasizes that curriculum development must prioritize curriculum elements and begin in a sequence determined and recommended by a rational model. It is a curriculum development model applied at the school level (School-Based Curriculum Development). This model is intended for every teacher who wants to develop a curriculum in accordance with the needs of their school (F. lise Chamisijatin, 2020).

According to the Dynamic Skilbeck model, the curriculum development process includes the following stages: analyzing the situation, formulating objectives, developing a program, interpretation and implementation, monitoring, feedback, assessment, and reconstruction. These stages can be depicted as follows:



Dynamic Skilbeck (Arifin, 2015)

Figure 1. Model SKILBECK

This study was conducted within maritime communities in the coastal areas around the Great Mosque Complex of Banten, located in Kasemen District, Serang City, Banten Province. The data collection techniques used in this study were observations and interviews, aimed at exploring indicators for curriculum design.

The subjects of this study were members of the maritime community along the coast of Old Banten Beach. These communities served as the basis for formulating a maritime-based curriculum design by involving community leaders, fishermen, curriculum development

experts, education practitioners, and Non-Governmental Organizations (NGOs) operating in the field of community maritime empowerment.

RESULTS AND DISCUSSION

This includes: (1) a survey of indicators for the design of the maritime sector curriculum, and (2) the formulation of the maritime sector curriculum design. A more detailed explanation is outlined as follows:

Survey Indicator Design Curriculum Sector Marine

The development of a curriculum serves not only as a framework for structuring learning experiences but also as a medium for shaping the character and values of a dignified society rooted in the nation's cultural and spiritual identity. In this context, the maritime-based curriculum must be designed to address the specific needs, interests, and socio-cultural conditions of maritime communities, particularly those in coastal regions such as Banten (Permana, 2004; Banten Provincial Regulation, 2018). The curriculum should respond to the dynamic challenges of modern times by integrating knowledge, skills, and values relevant to marine potential, enabling young learners to understand, utilize, and sustainably manage marine resources (Nurissobakh et al., 2018). This aligns with the idea that education plays a critical role in enhancing students' competencies, shaping their characters, and preparing them to contribute meaningfully to society, government, and industry (Sariono, 2013; Farchan & Muhtadi, 2019).

In line with the vision of developing Indonesia as a global maritime axis (Gia Nikawanti & Aca, 2021; Lukman Daris, 2019), the maritime-based curriculum must focus on cultivating knowledge, skills, and attitudes that are sustainable, contextual, and relevant to local realities. Particularly in early childhood, these components must be carefully designed to help children connect with their immediate social, cultural, and natural environments, as recommended by Iskandar and Hasbi (2019). Through this, early childhood education can foster independent, resilient, creative, persistent, and honest learners who are also empowered as critical thinkers and problem-solvers. Such qualities, as noted by Sukmadinata (2008) and Olivia (1982), are not innate but developed through structured, intentional, and progressive educational interventions guided by a clear and responsive curriculum. In the coastal communities of Old Banten, introducing these values early is especially vital to prevent the erosion of maritime awareness and to bridge the gap between children's knowledge and the rich marine environment in which they live (Soemarmi & Diamantina, 2019; Badan Pustaka Statistik, 2020).

To ensure that the curriculum is relevant and effective, the development process involved fishermen, fish farmers, community leaders, curriculum experts, educators, practitioners, and Non-Governmental Organizations (NGOs) engaged in maritime community empowerment. This participatory approach reflects what Farchan and Muhtadi (2019) describe as essential for curriculum development—aligning educational content with the realities of community life and incorporating local wisdom and problem-solving approaches. Based on exploratory research, five key indicators were formulated for the maritime curriculum: (a) a curriculum aimed at developing marine potential, (b) curricular content based on the socio-economic realities of the community, (c) the application of a problem-solving approach, (d) the development of student skills relevant to maritime contexts, and (e) active community participation (Prasetia et al., 2024; SAMAD, 2024). These indicators ensure that the maritime-

based curriculum is not only academically grounded but also culturally sensitive and socially responsive, contributing to national goals of maritime empowerment and human resource development from early childhood (Nuryati et al., 2023).

Formulation Design Curriculum Sector Marine

The formulation of the maritime-based early childhood curriculum begins with a clear vision, mission, and educational objectives. The vision is to develop children's knowledge and skills in the marine sector, while the mission focuses on enhancing their competencies and abilities to face challenges in maritime contexts. The curriculum objectives aim to introduce and strengthen children's self-identity as citizens of a maritime nation, fostering knowledge and understanding of Indonesia's vast marine potential from an early age (Nurissobakh et al., 2018; Daris, 2019). To achieve these objectives, learning activities are designed around project-based experiences, such as collaborative boat-making projects and coloring marine-themed images, which children then attach to the boats they have created. This approach is consistent with SAMAD's (2024) advocacy for project-based learning rooted in maritime culture, which encourages active, hands-on engagement. Through these activities, children are expected to gain extensive knowledge, develop practical skills for engaging with the marine environment, and adopt professional, ethical, and environmentally conscious attitudes.

In addition to project-based learning, appropriate educational methods such as discussions, guided practice, and concept exploration related to maritime themes are employed. These methods are designed to connect educational experiences directly with the lives of coastal communities, a principle supported by Farchan and Muhtadi (2019), who emphasize curriculum content based on real community life. Activities such as direct participation in fish processing and seaweed preparation serve not only to introduce children to local economic activities but also to nurture environmental awareness and foster a sense of pride in Indonesia's maritime heritage (Iskandar & Hasbi, 2019). These learning experiences align with contemporary educational goals that stress contextual and experiential learning tailored to geographic and cultural settings (Sukmadinata, 2008; Sariono, 2013). By integrating practical, community-based learning opportunities, the curriculum not only enriches children's cognitive and motor skills but also helps internalize important cultural values and environmental ethics.

The implications of this Maritime-Based Early Childhood Curriculum Development Model extend across several key areas. From an educational perspective, this model ensures that the curriculum is contextually relevant to the needs of early childhood learners in coastal regions, supporting character formation and environmental awareness (Prasetia et al., 2024; Nuryati et al., 2023). Socially, it contributes to the development of children's interpersonal skills and social values, preparing them to be cooperative, responsible, and community-oriented. Economically, by familiarizing children with maritime livelihoods and marine resources, the model plays a role in the long-term development of local human resources, cultivating future generations who are aware of and interested in marine industries (Badan Pustaka Statistik, 2020; Soemarmi & Diamantina, 2019). Environmentally, it fosters early awareness of marine ecosystems and sustainable practices, including waste management and resource conservation. Through these comprehensive contributions, the curriculum model helps cultivate a new generation that is not only capable but also eager to participate in the development and preservation of Indonesia's maritime potential (Gia Nikawanti & Aca, 2021; Lukman Daris, 2019).

THEORETICAL IMPLICATION OF THE STUDY' RESULTS

This study has significant theoretical implications, particularly in the areas of cultural identity formation, environmental education, and community-based learning. By integrating maritime values into early childhood education, the study emphasizes the critical role of education in shaping children's understanding of their cultural identity and connection to their environment. Theories of cultural development, such as those proposed by Sukmadinata (2008) and Vygotsky (1978), highlight the importance of early exposure to culturally relevant content in fostering a strong sense of identity. For children in coastal areas like Banten, embedding maritime knowledge in the curriculum encourages them to embrace their identity as part of Indonesia's maritime heritage, which aligns with national development goals, including the vision of positioning Indonesia as a global maritime axis (Gia Nikawanti & Aca, 2021; Lukman Daris, 2019).

This study also offers valuable insights into environmental education, particularly in the context of marine conservation and sustainable practices. The curriculum's focus on project-based learning and hands-on experiences supports constructivist learning theories (Piaget, 1976; Bruner, 1961), which advocate for active, experiential learning. Through direct engagement in activities such as fish processing and seaweed cultivation, children gain not only practical skills but also a deeper understanding of the importance of marine resource management. This approach fosters early environmental awareness, helping children develop attitudes and behaviors that prioritize sustainability, which is crucial in addressing environmental challenges such as resource depletion and climate change (Sterling, 2001).

Finally, the study reinforces the value of community-based learning and its contribution to social capital theory, which emphasizes the role of education in fostering cooperation, responsibility, and community engagement (Dewey, 1916). By involving local stakeholders—such as fishermen, community leaders, and NGOs—in the curriculum development process, the study ensures that the curriculum is both contextually relevant and aligned with the specific needs of the coastal community. This participatory approach not only strengthens the educational bond between children and their community but also prepares them to actively contribute to local economic and social development. The curriculum thus serves as a tool for nurturing children who are not only academically competent but also socially responsible, further supporting Indonesia's broader national development objectives.

CONCLUSION AND RECOMMENDATIONS

The development of a curriculum rooted in maritime values for early childhood education represents a timely and necessary response to the broader national vision of positioning Indonesia as a global maritime nation. Early childhood is a critical period for nurturing identity, values, and awareness, and this initiative highlights the importance of aligning educational experiences with the cultural, social, and environmental realities in which children live. By creating a learning environment that connects children with their natural surroundings, social structures, and local traditions, education can become a powerful medium for fostering pride, resilience, and critical thinking from a young age. This approach offers not only educational benefits but also contributes to strengthening social cohesion and environmental responsibility in maritime communities, thereby supporting sustainable national development in the long term.

To advance this vision, greater collaboration between educational institutions, local communities, and government stakeholders is essential. Early childhood education institutions, particularly in coastal areas, should seek to involve community leaders, maritime practitioners, and non-governmental organizations in both curriculum development and classroom implementation. Professional development for teachers must also prioritize culturally relevant, project-based, and environmentally conscious pedagogies that reflect the realities of Indonesia's maritime context. Furthermore, policymakers are encouraged to adopt supportive frameworks that integrate local marine potential into national education strategies, ensuring that children grow up with a strong sense of connection to their coastal environment. Sustained efforts in these areas will help build a future generation equipped with the knowledge, values, and competencies necessary to preserve and develop Indonesia's maritime potential, while nurturing character and environmental awareness from the earliest stages of learning.

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