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Implementation of the "*Lauk Murik*" Teaching Material in Science Lessons for Fifth Grade Students of State Elementary Schools 1 Kuluk Talawang

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Abstract

In harmony with an environment rich in local wisdom, the environment also needs to be utilized as a source and medium for learning, because the learning process involves seeing, observing, and experiencing, so that students can understand things that exist in real life. The changing educational paradigm demands the use of teaching materials that are contextual, meaningful, and relevant to students' lives. This study aims to describe the implementation of the local teaching material "Lauk Murik" in Natural and Social Sciences (IPAS) learning for fifth-grade students at SD Negeri 1 Kuluk Talawang. The use of this teaching material was developed as an effort to integrate the local cultural context into learning, thereby increasing student engagement and strengthening conceptual understanding. The subject of this reserach was 31 students with 16 male and 15 female. The study used a qualitative descriptive approach with data collection techniques through observation, interviews, and documentation. The results indicate that the "Lauk Murik" teaching material can enhance learning activities, facilitating students' understanding of IPAS concepts related to food, natural resources, and environmental sustainability. Furthermore, the integration of local cultural values makes learning more relevant and meaningful. This study recommends the further development of local wisdom-based teaching materials in the IPAS subject in elementary schools.

Keywords: teaching materials, Lauk Murik, IPAS, local wisdom, elementary school

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INTRODUCTION

Education in the Frontier, Outermost, and Disadvantaged regions, commonly known as the 3T (Uninhabitable, Frontier, and Less Developed) still faces various complex obstacles. According to Pakaya et al. (2024), limited infrastructure, such as inadequate school buildings, a lack of supporting facilities like libraries and laboratories, and very limited internet access, are major obstacles to the learning process. These conditions, observed in the initial observations of the 3T regions, make it difficult for students in these regions to obtain an optimal and balanced learning experience compared to students in other regions. Furthermore, the socio-cultural conditions of the communities in the 3T regions also influence student motivation and learning participation. In their research, Putri, Fadilah, and Syamsiyah (2022) found that low parental support for formal education, due to the continued strong dependence on traditional occupations such as farming and fishing, contributes to low levels of educational participation in these regions. Therefore, developing teaching materials relevant to local wisdom is crucial to increasing student interest and engagement in learning.

Considering these conditions, several efforts by the government and various institutions to improve educational conditions in the 3T regions have been made, but

budget and access challenges remain major obstacles. According to Siregar et al. (2024), the lack of logistical support and teacher training exacerbates the educational gap in these regions. Using contextual learning is crucial to increase student interest and understanding, especially at the elementary school level. In the conclusion of the study, Prabandari et al. (2022) found a significant impact between Student Worksheets (LKPD) based on science experiments relevant to students' daily experiences in increasing learning interest. By linking learning materials to real situations around students, the learning process becomes more meaningful and easier to understand, especially for students in 3T regions who require a learning approach that is appropriate to their environment. This teaching material combines direct experience and the application of concepts in everyday life, which is very effective in building these skills, especially in environments rich in local wisdom such as 3T regions. Kamus & Kamila (2024) found that an empirical study on how local potential can be integrated into science learning to increase student relevance and engagement; relevant as a theoretical and practical basis for developing *Lauk Murik*-based teaching materials.

In harmony with an environment rich in local wisdom, the environment also needs to be utilized as a source and medium for learning, because the learning process involves seeing, observing, and experiencing, so that students can understand things that exist in real life. The changing educational paradigm demands the use of teaching materials that are contextual, meaningful, and relevant to students' lives. One emerging approach is the integration of local wisdom in learning, especially at the elementary school level. The application of local culture in learning is very important, considering that the material taught today often does not touch on this aspect, even though culture is a characteristic of the Indonesian nation which is rich in diversity (Retno, 2021).

Research on education in the Frontier, Outermost, and Disadvantaged (3T) regions has identified numerous fundamental barriers, particularly related to limited educational infrastructure, low access to technology, and socio-cultural challenges that impact student learning participation (Pakaya et al., 2024; Putri, Fadilah, & Syamsiyah, 2022). Various studies also emphasize the importance of developing contextual teaching materials and integrating local wisdom to increase student motivation and engagement in learning, particularly at the elementary school level (Retno, 2021; Prabandari et al., 2022). However, existing research tends to focus on general approaches to teaching material development or the use of local experiences without delving deeper into specific cultural practices that can be directly utilized as learning resources.

Researchers see the potential of the "*Lauk Murik*" teaching material as a learning resource in science learning in the 3T area is very large because this material contains local wisdom values that can be directly linked to scientific concepts. "*Lauk Murik*" is an activity of people who live on the banks of the river, precisely located in Kuluk Talawang Village, Antang Kalang District, East Kotawaringin Regency, Central Kalimantan Province, namely an activity carried out by the community to catch migratory fish when the river water is very deep or when the river water is very low, and this activity is carried out in a traditional way and with mutual cooperation. So that contextual learning that integrates cultural elements and the environment around students is able to provide real and meaningful learning experiences (Sutardi & Sudirjo, 2021).

By using "*Lauk Murik*" as a teaching material, students not only learn theory but also understand the application of science in their daily lives, thereby increasing motivation and learning engagement. By integrating "*Lauk Murik*" into science lessons, teachers can create a more dynamic and relevant learning environment for students. This aligns with the principles of contextual learning, which emphasizes active student involvement in discovering and applying knowledge (Sutardi & Sudirjo, 2021). Therefore, developing "*Lauk Murik*"-based teaching materials is a strategic step in improving the quality of

education in 3T areas while simultaneously empowering local potential. Therefore, the purpose of this study is to determine how the "*Lauk Murik*" teaching material is implemented in science lessons for fifth-grade students at State Elementary Schools 1 Kuluk Talawang.

METHOD

This research belonged to a descriptive qualitative method. According to Ary, D. et al. (2014), descriptive research questions the nature, occurrence, or distribution of variables; this research involves describing, not manipulating, variables. This research was conducted at Grade V State Elementary School 1 Kuluk Talawang. The subject of this reserach was 31 students with 16 male and 15 female. The focus of the research is the implementation process of the "*Lauk Murik*" teaching material.

To ensure the credibility and trustworthiness of the research findings, this study employed triangulation techniques, which are essential in qualitative research to cross-verify data from multiple sources and perspectives. According to Ary et al. (2014), triangulation strengthens the validity of qualitative data by comparing information obtained through different methods or respondents. Based on the background above, the researcher used the following instruments: (a) observation to observe the teaching and learning process, (b) interviews with teachers and students provided deeper insights into their experiences, perceptions, and responses to the instructional material, and (c) documentation including field notes, learning instruments, and teaching materials, served as supporting evidence and helped verify the accuracy of observations and interview data.

Comparing these three methods allowed the researcher to identify converging themes and ensure that the findings were not based on a single data source. Data were gathered from multiple subjects to ensure a broader and more balanced understanding of the implementation process. Information from teachers was compared with data from students to identify alignment or discrepancies in their perspectives regarding the use of the "*Lauk Murik*" teaching material. The participation provided diverse viewpoints that strengthened the depth of the findings. All data obtained from observations, interviews, and documentation were cross-checked systematically. Field notes were matched with verbal statements from interviews and visual or written evidence from documents to ensure accuracy and eliminate potential researcher bias.

RESULTS AND DISCUSSION

This study applies local wisdom-based teaching materials "*Lauk Murik*" in science learning in fifth grade of State Elementary Schools 1 Kuluk Talawang. Based on data from observations, interviews, and documentation during the learning process. In addition, the discussion in this chapter links the findings with previous theories and research. The teaching materials developed contain a brief history of *Lauk Murik*, the manufacturing process, source of ingredients, nutritional value, and its relationship to science concepts related to the food chain, natural resources, and sustainability. The teacher uses a contextual approach and group discussions to link science concepts with local culture. Science learning related to the food chain, natural resources, and sustainability takes place in three stages, namely: introduction, core, and closing. The implementation of the "*Lauk Murik*" teaching materials is carried out in three meetings according to the lesson plan prepared based on a contextual learning approach. The teacher begins the lesson by linking science concepts especially the material on natural resources, river ecosystems, and sustainable environmental utilization with the activities of the Kuluk Talawang community in the *Lauk Murik* tradition.

The introductory stage is an important phase in science learning, because it becomes the foundation for building connections between student experiences and the

material to be learned. Based on the results of observations, the teacher began the lesson by giving trigger questions relevant to the local context, namely: "What are our local specialties?" and "How do people get fish in the river during the dry season or floods?" These questions were proven to be able to attract students' attention because they were directly related to their experiences. From the researcher's observations, these two questions immediately attracted students' attention because they were closely related to their life experiences in a rural environment close to the river. Most students were able to provide spontaneous and confident answers. Some of the answers the researcher found were "Gangan umbut rattan, Ma'am!", "Fried saluang fish, Ma'am.", "There is a side dish called murik, during the flood season.", "People catch fish using lukah when the water recedes." "During floods, they use large traps for murik." Of the total of 21 students, 17 students raised their hands to answer verbally. Four other students provided non-verbal responses, such as nodding, pointing to pictures shown by the teacher, or having short discussions with their group mates. This data shows a high level of initial engagement. It could be seen in figure 1.



Figure 1. teaching materials by illustrating *Lauk Murik*

Next, the core stage involves reading teaching materials, observing illustrations of the *Lauk Murik* process, having group discussions, and making concept maps about the relationship between local traditions and the concept of science and natural sciences. The teaching materials used contain three main aspects, namely: the cultural and social values of the *Lauk Murik* tradition, the process of fish migration and the dynamics of the river ecosystem, and the use of natural resources in a traditional and sustainable manner. The core activity lasts for ± 50 minutes and includes four main activities: (1) reading teaching materials, (2) observing illustrations of the *Lauk Murik* process, (3) having group discussions, and (4) making concept maps about the relationship between local traditions and the concept of science and natural sciences.

In the closing stage, students are invited to reflect on what they have learned to relate to their daily lives, including the importance of maintaining rivers as healthy fish habitats. The "*Lauk Murik*" teaching material is a valuable learning resource because it highlights the local wisdom of the Kuluk Talawang community. Learning oriented towards local culture can strengthen students' identity and pride in regional culture, help students understand scientific phenomena through concrete experiences, and increase

the relevance and closeness of science material to real life. In the context of the study, students appeared enthusiastic when the teacher explained the murik tradition, as some of them had participated in the activity with their families. This shows that the integration of local culture can increase learning motivation.

In line with Lestari & Habibah (2024) found that the development procedures and impact of science teaching materials based on local wisdom on student learning outcomes; useful for content development models and student worksheets. The research findings revealed that learning in the preliminary stage was conducted in a dialogic manner. The teacher encouraged students to ask questions, respond to each other, and share experiences. This demonstrates that the teacher facilitated student-centered learning from the beginning and was able to bridge abstract science concepts with students' daily lives. This finding reinforces the theory of contextual learning, which states that knowledge becomes meaningful when linked to students' experiences. Integrating local culture not only improves conceptual understanding but also builds students' cultural identity. This is in line with previous studies that suggest that local wisdom-based learning can strengthen scientific literacy, cultural literacy, and social competence. However, challenges related to limited visual media and students' readiness to discuss require attention for further development. Improving the quality of teaching materials, varying methods, and teacher training can address these obstacles.

Learning that utilizes the local cultural context, particularly the tradition of catching *Lauk Murik* fish, which has become an integral part of local life, makes it easier for students to understand the science concepts taught because they are close to their daily experiences. First, observations show that the "*Lauk Murik*" teaching material is effective in activating students' prior knowledge and triggering learning engagement from the introductory stage. The teacher's provocative questions related to local specialties and how the community catches fish have been shown to connect students' personal experiences with the concepts to be learned. This is in line with Ausubel's (1968) view that meaningful learning can occur when students are able to connect new information with their pre-existing cognitive structures.

Second, at the core stage, these local wisdom-based teaching materials encourage more complex learning activities, such as critical reading, observing process illustrations, group discussions, and creating concept maps. These activities reflect the implementation of a contextual teaching and learning approach, which emphasizes active student involvement in connecting theory to real-life realities. The results of this study align with the findings of Sutardi and Sudirjo (2021), who confirmed that local context-based learning can improve elementary school students' conceptual understanding and learning motivation.

Third, the use of *Lauk Murik* process illustrations plays a crucial role in helping students understand abstract scientific concepts such as fish migration, changes in river currents, the dynamics of aquatic ecosystems, and the sustainable use of natural resources. These visualizations serve as a form of scaffolding that helps students connect natural phenomena with familiar cultural practices. This is relevant to Jerome Bruner's theory, which emphasizes the importance of visual representation in fostering the development of understanding in elementary school-aged children.

Furthermore, group discussion activities demonstrated that learning not only enhanced students' understanding of the science material but also fostered social skills such as communication, cooperation, and problem-solving. The *Lauk Murik* tradition, which emphasizes mutual cooperation, makes group discussions a reflection of authentic cultural practices in the classroom context. Thus, this teaching material not only facilitates cognitive learning but also contributes to character development in line with the Pancasila Student profile.

Furthermore, students' ability to create concept maps demonstrated their ability to synthesize the relationship between cultural and scientific aspects within a unified framework. Students were able to illustrate the relationship between environmental dynamics, organism behavior, human activities, and local cultural values embedded in the Murik tradition. This indicates that learning has led to the development of higher-order thinking skills (HOTS), as required by the science curriculum.

The findings of this study reinforce Retno's (2021) opinion regarding the importance of integrating local culture into learning to enrich the material's substance and increase the relevance of students' learning experiences. In 3T OR Underdeveloped Region areas such as Kuluk Talawang, the use of local wisdom can also be a solution to the limited availability of modern learning resources, allowing teachers to continue delivering meaningful and high-quality learning. Overall, the implementation of the "*Lauk Murik*" teaching material has a positive impact on the science and science learning process. This teaching material increases student engagement, strengthens conceptual understanding, fosters appreciation for local culture, and creates a more lively and authentic learning environment. Therefore, local wisdom-based teaching materials such as *Lauk Murik* are highly recommended for wider development and use, especially in areas with unique cultural richness and natural environments.

Based on the findings of this study, it is recommended that teachers in 3T regions incorporate local cultural practices such as "*Lauk Murik*" into science instruction to enhance contextual learning and increase student engagement. Schools should provide professional development programs that equip teachers with the skills to integrate local wisdom into curriculum materials effectively. Additionally, policymakers and educational institutions are encouraged to support the development of culturally relevant teaching resources tailored to the unique characteristics of 3T communities. For future research, scholars are advised to conduct longitudinal studies to examine the long-term impact of "*Lauk Murik*" based instructional materials on students' scientific understanding and attitudes. Further investigations may also explore the adaptation of similar cultural practices across different regions to develop a wider framework for culturally responsive science education in disadvantaged contexts.

CONCLUSIONS

The implementation of the "*Lauk Murik*" teaching material can be applied well in fifth grade science learning and is able to create an active learning atmosphere. It can be concluded that the implementation of the "*Lauk Murik*" teaching material is very good and shows clear effectiveness in the process and results of student learning. The integration of local wisdom in the form of the *Lauk Murik* tradition is able to create a more active, participatory, and meaningful learning atmosphere. Students are optimally involved in the entire learning series, starting from reading the teaching material, observing illustrations, group discussions, to compiling concept maps that connect local culture with science concepts. In addition, this teaching material not only strengthens students' understanding of the material on river ecosystems, fish migration, and the use of natural resources, but also fosters an appreciation of the social and cultural values of the local community. The use of real contexts that are familiar to students is proven to increase learning motivation, facilitate understanding of scientific concepts, and encourage the formation of critical and collaborative thinking skills. Thus, the "*Lauk Murik*" teaching material is suitable for use as an alternative learning resource based on local wisdom in science lessons in elementary schools, especially in the 3T regions. This implementation demonstrates that integrating local culture into learning can be an effective strategy for improving the quality and relevance of the teaching and learning process.

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Based on the research findings, it is recommended that elementary school teachers, especially in 3T areas, use local wisdom-based teaching materials such as *Lauk Murik*, since they make science and social learning more active, meaningful, and closely related to students' real-life experiences. Schools should also support teacher training so educators can develop similar contextual materials. For future studies, researchers are encouraged to test the effectiveness of these materials quantitatively with larger samples, compare them with conventional teaching materials, and examine their long-term effects on conceptual understanding, learning motivation, critical thinking skills, and students' appreciation of local culture.

AUTHOR CONTRIBUTIONS

B. Bulkani contributed to the study conception, research design, data analysis, supervision, and manuscript revision. T. Elhawwa contributed to data collection, classroom observation, interviews, data interpretation, and drafting of the manuscript. F. Weni contributed to the implementation of the teaching materials in the classroom, documentation, and validation of field data. All authors discussed the results, contributed to the final version of the manuscript, and approved the submitted version.

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