



Integration of Local Wisdom in IPAS Learning for Islamic Awareness, Environment, and Sasak Culture

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Abstract

This study examined how Sasak local wisdom was integrated into Natural and Social Sciences (IPAS) learning and how this integration supported students' awareness of Islamic values, environmental responsibility, and Sasak cultural preservation. A qualitative case study was conducted at a public elementary school implementing the Merdeka Curriculum in Central Lombok, Indonesia. The case involved one principal, two classroom teachers, and 24 fifth-grade students. Data were collected through classroom observations, semi-structured interviews with the principal, teachers, and selected students, and document analysis. The data were analyzed using the interactive model of Miles, Huberman, and Saldaña, consisting of data condensation, data display, and conclusion drawing and verification. The findings indicated that Sasak local wisdom had not been integrated systematically into IPAS learning. Teachers experienced difficulties in mapping IPAS learning outcomes onto local cultural practices, relied mainly on textbooks and general examples, and had limited access to relevant learning resources and sustained professional support. Nevertheless, locally grounded practices such as *besiru* and *awig-awig* were perceived as making learning more contextual and supporting the internalization of religious, social, cultural, and ecological values. Based on these findings, the study proposes a contextual implementation framework that connects scientific concepts, social phenomena, Islamic values, and Sasak local wisdom through inquiry-based learning, project-based learning, ethnopedagogy, reflection, and holistic assessment. The framework may guide adaptation in elementary schools with similar cultural contexts, although further validation is required before broader implementation.

Keywords: Sasak local wisdom; IPAS learning; Islamic values; Environmental responsibility; Contextual learning

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INTRODUCTION

Twenty-first-century education is concerned not only with students' academic competence but also with character development, social skills, environmental responsibility, and the ability to respond to problems encountered in everyday life. In Indonesia, the Merdeka Curriculum promotes student-centered and contextual learning by encouraging schools to use students' social, cultural, and natural environments as learning resources (Usanto, 2022). At the elementary school level, Natural and Social Sciences, locally known as *Ilmu Pengetahuan Alam dan Sosial* (IPAS), integrates scientific concepts and social phenomena to help students understand the relationships among humans, nature, culture, and technological development. This interdisciplinary orientation provides teachers with opportunities to connect curriculum content with the immediate environments in which students live.

The integration of local wisdom is particularly relevant in elementary education because

students' understanding is strongly influenced by concrete experiences. Learning that draws on familiar cultural practices can help students interpret abstract concepts through situations they encounter in their families and communities. Tohri et al. (2022) argue that local wisdom should be incorporated across subjects and school activities so that education develops both academic competence and culturally grounded character. From this perspective, local culture should not be treated merely as supplementary teaching content. Instead, it can function as a contextual foundation through which students understand disciplinary concepts, social responsibilities, and the values practiced within their communities.

The culture of the Sasak people on Lombok Island provides a relevant context for such learning. Sasak local wisdom includes value systems that regulate relationships with God, other people, and the natural environment. Cultural practices such as *besiru*, which emphasizes mutual assistance; *begibung*, which reflects social solidarity; and *awig-awig*, which refers to customary rules governing communal life and environmental management, contain religious, social, moral, and ecological meanings. Other community practices, including the protection of springs and respect for customary forest areas, can also be connected to IPAS topics such as ecosystems, natural resource conservation, environmental sustainability, social interaction, and cultural diversity. Sasak cultural practices provide a culturally grounded context for examining how local ecological knowledge is embedded in social relations and religious meanings and how these interconnections may inform environmental awareness and responsibility (Cederroth, 1996; Harnish, 2003; Rahayu et al., 2016; Telle, 2000).

The educational relevance of Sasak local wisdom has been recognized in previous research. Tohri et al. (2022) emphasize that revitalizing Sasak cultural values through education is important for strengthening the character and cultural identity of younger generations. Similarly, the integration of local wisdom into social science education can encourage responsibility, cooperation, and environmental awareness because students learn from their own social environments (Benu & Supriatna, 2024). Satino et al. (2024) further associate the preservation of local wisdom with the maintenance of social values and national identity. These findings indicate that culturally grounded learning may function not only as a contextual teaching strategy but also as a means of supporting cultural continuity and value education.

A growing body of research has also focused on developing Sasak culture-based learning materials for elementary education. Fitri et al. (2025) developed an IPAS module incorporating Sasak cultural values and reported that the material met the established criteria for feasibility and practicality. Student worksheets based on Sasak local wisdom have also been developed to support contextual IPAS learning in elementary schools (Adni et al., 2025). In another study, Pana and Asrin (2024) developed an ethnopedagogical module designed to connect IPAS content with students' cultural environments. Similar efforts have produced Sasak local wisdom-based modules intended to support students' learning interest and appreciation of regional culture (Maktum et al., 2025). More recently, Anggreni et al. (2026) developed IPAS teaching materials oriented toward ecoliteracy and the environmental values embedded in Sasak culture.

Although these studies demonstrate that Sasak local wisdom can be represented in modules, student worksheets, and other instructional materials, most have concentrated on product development, validity, feasibility, and practicality. Such findings do not adequately explain how teachers use local wisdom during actual classroom instruction, how students respond to culturally contextualized learning, or how religious, cultural, and environmental values are interpreted through classroom interactions. Moreover, the availability of learning materials does not necessarily ensure that teachers can systematically connect curriculum outcomes, scientific concepts, social phenomena, and cultural practices.

Research on local wisdom and character education presents a related limitation. Previous studies have discussed the contribution of local culture to character formation and culturally

responsive education, but the relationships among IPAS content, Islamic values, environmental responsibility, and Sasak cultural preservation have rarely been examined within a single classroom process. Nurlaela (2025), for example, discusses the integration of Islamic values into IPAS learning. Local wisdom has also been identified as a potential foundation for Islamic value-based education (Nurdin & Jamila, 2025). Nevertheless, these dimensions are generally discussed separately. Consequently, limited evidence is available concerning how teachers integrate scientific concepts, social realities, Islamic values, and local cultural knowledge within the planning, implementation, and evaluation of IPAS learning.

This gap is important because integrating local culture involves more than inserting cultural examples into teaching materials. Teachers must identify relevant cultural practices, connect them with learning outcomes, design appropriate classroom activities, facilitate students' interpretation of values, and assess knowledge, attitudes, and skills coherently. The effectiveness of local wisdom-based education therefore depends considerably on teachers' capacity to translate cultural knowledge into meaningful classroom practices. Similar concerns have been raised regarding the need to connect contextual resources with structured instructional planning rather than using local culture merely as additional information (Benu & Supriatna, 2024).

A classroom-based investigation is therefore needed to understand the actual implementation of Sasak local wisdom in IPAS learning. Such an investigation should examine not only the learning materials used by teachers but also instructional planning, classroom interactions, student responses, evaluation practices, and the pedagogical challenges encountered during implementation. It is equally important to determine how students perceive the relationships among science, Islamic values, environmental responsibility, and the cultural practices they experience in everyday life.

Accordingly, this study examined how Sasak local wisdom was integrated into IPAS learning at a public elementary school in Central Lombok, Indonesia. It specifically investigated how teachers planned, implemented, and evaluated culturally contextualized learning, the pedagogical and instructional challenges that emerged during implementation, and how the learning process was perceived to support students' awareness of Islamic values, environmental responsibility, and Sasak cultural preservation. Based on the findings, the study also formulated a preliminary implementation framework connecting scientific concepts, social phenomena, Islamic values, and Sasak local wisdom. Rather than being presented as a validated instructional model, the proposed framework is intended to inform the development and adaptation of contextual IPAS learning in elementary schools with similar cultural characteristics.

METHODS

Research Design

This study employed a qualitative approach with a case study design to examine how Sasak local wisdom was integrated into Natural and Social Sciences (*Ilmu Pengetahuan Alam dan Sosial*, IPAS) learning. It also explored how teachers and students perceived the contribution of this integration to students' awareness of Islamic values, environmental responsibility, and Sasak cultural preservation. A qualitative approach was selected because the study focused on understanding the meanings, processes, and experiences associated with the implementation of culturally contextualized learning.

Lee et al. (2024) describe a case study as an appropriate strategy for investigating a contemporary phenomenon within its real-life context, particularly when the boundaries between the phenomenon and its context are not clearly defined. Similarly, Yin (2014) explains that case study research enables researchers to investigate contextual conditions that are relevant to the phenomenon being examined. A case study also allows a bounded system to be explored in depth through multiple sources of evidence, thereby producing a comprehensive account of the case (Creswell, 2014). This design was therefore considered appropriate for

examining the integration of Sasak cultural values into IPAS learning as it occurred naturally within the school environment.

Research Site and Participants

The study was conducted at a public elementary school in Central Lombok Regency, West Nusa Tenggara, Indonesia. The school was selected purposively because it was situated within a predominantly Sasak community, had implemented the Merdeka Curriculum in Grades IV and V, and had incorporated elements of local potential into its learning activities.

The participants consisted of one principal, two classroom teachers responsible for teaching IPAS, and 24 fifth-grade students. Purposive sampling was used to select participants who possessed relevant knowledge and direct experience of the phenomenon under investigation. Patton explains that purposive sampling enables qualitative researchers to identify information-rich cases that can provide an in-depth understanding of the research problem (as cited in Yusuf, 2014). The principal was selected because of their role in school policy and curriculum implementation, while the teachers were selected because they were directly involved in planning, implementing, and evaluating IPAS learning. The 24 students constituted the class observed during the study, while selected students participated in the interview process to describe their learning experiences and perceptions of Sasak local wisdom-based IPAS learning.

Data Collection

Data were collected through classroom observations, semi-structured interviews, and document analysis. The use of multiple data-collection techniques was intended to provide complementary evidence and develop a more comprehensive understanding of the case. Multiple sources of evidence are particularly important in case study research because they enable researchers to examine a phenomenon from different perspectives (Merriam & Tisdell, 2016, as cited in Dejenu & Debela, 2022).

Classroom observations were conducted during IPAS learning activities. The observations focused on teachers' instructional practices, student participation, teacher-student interactions, the learning media used, and the ways Sasak cultural practices and Islamic and environmental values were connected with IPAS content. Particular attention was given to whether local wisdom functioned as a central learning context or was used only as a supplementary example.

Semi-structured interviews were conducted with the principal, the two classroom teachers, and selected students. Interviews with the principal focused on school policies, curriculum implementation, support for local wisdom-based learning, and teacher professional development. Teacher interviews explored lesson planning, strategies for connecting IPAS learning outcomes with Sasak cultural practices, instructional resources, assessment practices, and challenges encountered during implementation. Student interviews examined their experiences of culturally contextualized learning, their understanding of the cultural practices discussed in class, and their perceptions of the relationships among IPAS concepts, Islamic values, environmental responsibility, and Sasak culture.

Document analysis included teaching modules, lesson plans and other instructional materials, student worksheets, photographs of learning activities, samples of student work, and relevant school documents. These materials were examined to corroborate the observation and interview findings and to determine the extent to which Sasak local wisdom, Islamic values, and environmental concerns were represented in instructional planning and assessment.

Researcher and Supporting Instruments

The researcher served as the primary research instrument and was responsible for designing the study, collecting data, interpreting the findings, and drawing conclusions. Supporting instruments included an observation protocol, semi-structured interview guides,

and a document review sheet. These instruments were developed in accordance with the research objectives and the dimensions investigated in the study.

The observation protocol contained indicators related to the implementation of IPAS learning, the integration of Islamic values, the use of Sasak local wisdom, teacher-student interactions, student participation, and learning activities related to environmental responsibility. The interview guides were designed to explore teachers' experiences in planning culturally contextualized learning, the strategies used to integrate local culture, the challenges they encountered, and students' perceptions of the learning process. The document review sheet was used to organize evidence obtained from teaching materials, student work, photographs, and school records.

Data Analysis

Data were analyzed using the interactive model developed by Miles et al. (2014), which consists of data condensation, data display, and conclusion drawing and verification. These processes were conducted interactively throughout data collection and analysis rather than as strictly separate stages.

During data condensation, observation notes, interview data, and documentary evidence were selected, organized, coded, and categorized according to the focus of the study. The initial categories included the integration of Islamic values, environmental responsibility, Sasak cultural practices, the implementation of IPAS learning, teachers' pedagogical challenges, and student responses. Relevant data were subsequently compared across participants and data sources to identify recurring patterns, similarities, and differences.

The condensed data were presented in narrative descriptions, thematic matrices, and tables to facilitate interpretation. Evidence from interviews was compared with classroom observations and instructional documents to examine the consistency of the findings. During conclusion drawing and verification, the emerging interpretations were reviewed continuously against the available evidence. The findings were also related to relevant theoretical perspectives and previous studies to answer the research questions and formulate a preliminary implementation framework.

Trustworthiness

The trustworthiness of the findings was established through credibility, transferability, dependability, and confirmability, following the criteria proposed by Lincoln and Guba (1985, as cited in Naamy, 2022). Credibility was supported through source triangulation, method triangulation, and member checking. Source triangulation involved comparing information obtained from the principal, teachers, and students, while method triangulation involved examining consistency across observations, interviews, and documents. Member checking was conducted with the teacher informants to confirm the accuracy of the researchers' interpretations.

Transferability was supported by providing a detailed description of the school context, participants, learning conditions, and implementation of Sasak local wisdom-based IPAS learning. This contextual information enables readers to judge whether the findings may be relevant to other settings with similar characteristics. Dependability was maintained through an audit trail documenting the stages of data collection, organization, analysis, and interpretation. Confirmability was addressed by ensuring that interpretations were grounded in observation records, interview data, and documentary evidence rather than solely in the researchers' assumptions.

RESULTS AND DISCUSSION

Current Integration of Sasak Local Wisdom into IPAS Learning

The findings indicated that Sasak local wisdom had not yet been integrated systematically into Natural and Social Sciences (*Ilmu Pengetahuan Alam dan Sosial*, IPAS) learning. Classroom observations and teacher interviews showed that the teachers recognized the

importance of connecting learning materials with students' immediate social and cultural environments. However, this awareness had not been consistently translated into lesson planning, instructional activities, learning resources, or assessment practices.

Teachers generally relied on textbooks and examples commonly provided in instructional materials. Local cultural practices were occasionally mentioned during classroom explanations, but they were not consistently used as the primary context for exploring IPAS concepts. Consequently, learning remained more conceptual than contextual. Students received information about ecosystems, environmental conservation, social interaction, and cultural diversity, but opportunities to examine these concepts through familiar Sasak practices were relatively limited.

The teachers also experienced difficulties in mapping IPAS learning outcomes onto relevant cultural practices. For example, *besiru*, which reflects mutual assistance and collective responsibility, could be connected to social interaction and community cooperation. The practice of *awig-awig* could be related to environmental regulation, natural resource management, and collective responsibility for conservation. Similarly, the protection of springs and customary forest areas could provide concrete contexts for learning about ecosystems and environmental sustainability. Despite these possibilities, such connections were not incorporated systematically into the observed learning activities.

This finding suggests that the principal challenge was not teachers' rejection of local wisdom but their limited practical knowledge of how to transform cultural practices into structured instructional experiences. Tohri et al. (2022) emphasize that the educational value of local wisdom depends on the extent to which cultural values are incorporated into the entire learning process rather than presented as isolated examples. A similar argument is advanced by Benu and Supriatna (2024), who maintain that the integration of local wisdom requires alignment among learning objectives, instructional strategies, learning resources, classroom activities, and assessment.

The findings therefore distinguish between the recognition of local culture and its pedagogical integration. Teachers may understand that Sasak culture is relevant to students' lives, but effective integration requires the ability to identify cultural knowledge, connect it with curriculum outcomes, formulate contextual questions, design student-centered activities, and assess the resulting knowledge and values. Without this pedagogical transformation, local wisdom remains supplementary information rather than an organizing context for learning.

Factors Limiting Systematic Integration

Three interconnected factors limited the systematic integration of Sasak local wisdom into IPAS learning: teachers' pedagogical competence, limited professional support, and insufficient access to contextual learning resources.

First, teachers demonstrated a general understanding of local wisdom but experienced difficulties in incorporating it into teaching modules, student worksheets, learning projects, and assessment instruments. They had not yet developed a systematic procedure for identifying which cultural practices were relevant to specific IPAS learning outcomes. As a result, instructional activities were dominated by general examples that were easier to obtain from textbooks but were less directly related to students' cultural environments.

This difficulty reflects a broader distinction between content awareness and pedagogical competence. Knowledge of a cultural practice does not automatically enable teachers to use it effectively for instruction. Teachers must determine which scientific and social concepts can be explored through the practice, what learning activities are appropriate for elementary students, how Islamic and environmental values should be discussed, and what evidence can be used to assess students' understanding.

Second, the teachers had received limited specialized training on local wisdom-based IPAS learning. Existing professional development activities were reported to be general and did not provide sufficient examples of how Sasak cultural practices could be incorporated into

lesson plans, classroom inquiry, projects, and assessments. One-time training activities were therefore unlikely to address the practical difficulties encountered during implementation.

Darling-Hammond et al. (2017) explain that effective professional development is sustained, collaborative, practice-based, and connected to the problems teachers encounter in their classrooms. The findings of the present study support this view. Teachers required not only theoretical explanations of culturally contextualized learning but also opportunities to design teaching materials, test classroom activities, observe implementation, and reflect on the results with colleagues.

Third, the availability and classroom use of local culture-based learning resources remained limited. Previous studies have produced modules, student worksheets, and other teaching materials incorporating Sasak local wisdom. However, the existence of such products does not necessarily ensure their consistent use in schools. Anggreni et al. (2026) found that Sasak local wisdom-based IPAS materials could support ecoliteracy-oriented learning, but their classroom contribution still depended on teachers' readiness to adapt and implement them. Thus, instructional resources and teacher competence should not be treated as separate issues. Relevant materials are useful only when teachers understand how to integrate them into coherent learning processes.

Relationships among IPAS, Islamic Values, Environmental Responsibility, and Sasak Culture

The findings also showed that IPAS concepts, Islamic values, environmental responsibility, and Sasak culture tended to be presented as separate areas of learning. Students learned about environmental conservation and community life, but the relationships among scientific knowledge, religious responsibility, and cultural practices were not consistently made explicit.

This separation limited opportunities for students to interpret IPAS concepts through the moral and cultural meanings embedded in their everyday environments. Sasak practices contain values that are compatible with Islamic principles, including mutual assistance, responsibility, respect for others, and stewardship of the natural environment. When these relationships are discussed explicitly, students can understand that protecting water sources, maintaining communal spaces, and respecting customary environmental rules are not merely technical actions. They also represent social, cultural, and moral responsibilities.

Hirlan and Mukminah (2025) underline the role of habituation and contextual experience in the development of Islamic character. In a broader cultural context, the preservation of local wisdom can also support social responsibility, cultural continuity, and collective identity (Satino et al., 2024). These perspectives are relevant to IPAS because the subject combines scientific and social dimensions and therefore provides space for students to examine the relationship between knowledge, values, and action.

Nevertheless, the present findings should not be interpreted as evidence that the observed learning had already improved students' religious awareness, environmental behavior, or cultural identity. The study did not employ pre-intervention and post-intervention measurements or a longitudinal assessment of behavioral change. Rather, the observation and interview data suggest that Sasak local wisdom offers a potentially meaningful context for supporting the interpretation and internalization of these values when the integration is planned and implemented systematically.

The distinction is important. Culturally contextualized learning may create opportunities for value internalization, but such outcomes cannot be assumed merely because cultural examples are included in a lesson. Students need opportunities to investigate cultural practices, discuss their meanings, relate them to IPAS concepts and Islamic principles, apply them to contemporary problems, and reflect on their implications for personal and collective responsibility.

Strengthening Teachers' Capacity for Local Wisdom-Based Learning

The findings point to the need for sustained teacher development rather than isolated training. Teachers require structured assistance in identifying local cultural resources, mapping them onto IPAS learning outcomes, designing contextual activities, developing relevant learning materials, and assessing knowledge, attitudes, and skills.

One appropriate strategy is lesson study, through which teachers collaboratively plan a lesson, observe its implementation, analyze student responses, and revise the instructional design. Teacher learning communities can serve a similar function by allowing teachers to exchange cultural resources, discuss pedagogical challenges, and develop teaching materials collaboratively. Wadi et al. (2025) indicate that collaborative assistance in developing local wisdom-based instructional materials can strengthen teachers' capacity to identify and integrate cultural values into learning.

Professional development should therefore involve several interconnected activities. Teachers should first map IPAS topics onto relevant Sasak cultural practices. They should then develop teaching modules, student worksheets, inquiry activities, projects, and assessment criteria based on those connections. The resulting materials should be implemented, observed, and evaluated through collaborative reflection. This cycle would enable teachers to move from a general appreciation of local wisdom to the practical competence required for classroom implementation.

The development of culturally contextualized learning materials is also important. Pana and Asrin (2024) demonstrate that ethnopedagogical modules can connect learning content with students' cultural environments. However, modules and worksheets should not be treated as fixed products that teachers apply mechanically. They need to be adapted to local conditions, students' prior knowledge, available community resources, and the learning outcomes being addressed.

Collaboration with community members could further strengthen the authenticity of learning. Traditional leaders, religious leaders, parents, and community practitioners possess knowledge about the meanings, rules, and contemporary applications of Sasak cultural practices. Their involvement could help teachers avoid presenting local wisdom superficially or inaccurately. They may participate as learning resources, provide information for student projects, assist with environmental observations, or contribute to discussions about the relationships among culture, religion, and ecological responsibility.

Benu and Supriatna (2024) argue that local wisdom becomes educationally meaningful when it is connected with students' lived experiences through structured learning activities. Accordingly, community involvement should be integrated into lesson objectives and student activities rather than limited to ceremonial participation. For example, students could interview community members about the implementation of *awig-awig*, document practices for protecting water sources, and compare these practices with scientific principles of environmental conservation.

Preliminary Framework for Integrating Sasak Local Wisdom into Natural and Social Sciences (IPAS) Learning

Based on the empirical findings and their interpretation in relation to previous research, this study proposes a preliminary framework for integrating IPAS concepts, Islamic values, environmental responsibility, and Sasak local wisdom (Aikenhead & Jegede, 1999; Harnish, 2003; Rahayu et al., 2016; Tohri et al., 2022). The framework is not presented as a validated instructional model. Instead, it represents an analytical and practical proposition derived from the implementation problems identified in the case.

In the framework, IPAS provides the scientific and social concepts to be learned, Sasak culture provides the contextual setting, Islamic values provide a moral and spiritual orientation, and environmental responsibility directs students toward relevant action (Aikenhead & Jegede,

1999; Khalid, 2010; Rahayu et al., 2016; Tohri et al., 2022). These dimensions can be connected through seven interrelated stages.

Contextual Orientation

The teacher begins by presenting a social, cultural, or environmental phenomenon familiar to students (Semken & Freeman, 2008; Tohri et al., 2022). Examples may include besiru, community management of water sources, customary environmental rules, or collective activities for maintaining village cleanliness. The teacher introduces the phenomenon through photographs, stories, objects, short videos, or questions based on students' experiences (Pedaste et al., 2015).

At this stage, the purpose is not to provide a complete explanation but to activate prior knowledge and help students recognize that IPAS concepts are connected with their everyday lives (Aikenhead & Jegede, 1999; Semken & Freeman, 2008). Relevant Islamic values, such as responsibility, mutual assistance, and the obligation to avoid environmental damage, may be introduced as questions for further investigation rather than as statements that students simply memorize (Khalid, 2010; Tohri et al., 2022).

Inquiry-Based Exploration

Students observe, identify, and gather information about the selected phenomenon (Pedaste et al., 2015). Exploration may be conducted through classroom materials, field observations, simple investigations, interviews with community members, or analysis of local cases (Pedaste et al., 2015; Rahayu et al., 2016). The teacher guides students in developing questions and identifying evidence (Pedaste et al., 2015).

Inquiry-based exploration allows students to examine how cultural practices operate and why communities maintain them (Aikenhead & Jegede, 1999; Tohri et al., 2022). For example, students may investigate how local communities manage water, what rules apply to the use of natural resources, or how collective work contributes to environmental cleanliness (Rahayu et al., 2016). The teacher acts as a facilitator who supports observation and questioning without dominating the learning process (Hmelo-Silver, 2004; Pedaste et al., 2015).

Conceptual Elaboration and Problem Analysis

Students connect the information collected during exploration with relevant IPAS concepts (Aikenhead & Jegede, 1999; Semken & Freeman, 2008). They may analyze relationships among living organisms, human activities, natural resources, social cooperation, environmental change, and cultural regulation (Rahayu et al., 2016).

Problem-based learning may be incorporated at this stage by presenting environmental or social problems that require students to apply scientific knowledge and cultural understanding (Hmelo-Silver, 2004). Students could analyze the consequences of water pollution, declining participation in mutual assistance, or violations of customary environmental rules. They would then consider how science, community values, and Islamic principles could contribute to possible solutions (Aikenhead & Jegede, 1999; Khalid, 2010; Tohri et al., 2022).

Value Integration and Reflection

Students reflect on the moral, cultural, and environmental meanings of the concepts and problems examined (Khalid, 2010; Mann et al., 2009; Tohri et al., 2022). The teacher facilitates discussion concerning responsibility toward other people and the environment, the significance of cooperation, and the relationship between human actions and stewardship of nature (Khalid, 2010).

Reflection may be conducted through classroom discussion, learning journals, reflective questions, concept maps, or short written responses (Mann et al., 2009). This stage is intended to help students articulate the relationship among IPAS knowledge, Sasak cultural values, and Islamic principles (Harnish, 2003; Rahayu et al., 2016; Tohri et al., 2022). Values are therefore

explored through interpretation and reflection rather than delivered only through direct instruction (Mann et al., 2009).

Contextual Project Development

Students apply their learning through a project connected to the local environment (Kokotsaki et al., 2016; Semken & Freeman, 2008). Possible projects include documenting a Sasak cultural practice related to environmental management, preparing a report on the condition of a local water source, developing a campaign for environmental protection, or proposing a classroom adaptation of mutual assistance practices.

Project-based learning provides opportunities for students to collaborate, communicate, investigate evidence, and produce a meaningful outcome (Kokotsaki et al., 2016). Project-based learning as a relevant approach for connecting academic content with contextual problems (Kokotsaki et al., 2016). In this framework, however, projects should remain aligned with specific IPAS learning outcomes and should not be conducted merely as cultural exhibitions (Gulikers et al., 2004; Kokotsaki et al., 2016).

Presentation and Collective Reflection

Students present their findings or products to classmates, teachers, and, when appropriate, community members (Kokotsaki et al., 2016). Presentations should explain not only what students produced but also which IPAS concepts, Islamic values, environmental responsibilities, and cultural meanings they identified.

The teacher facilitates feedback and collective reflection (Mann et al., 2009; Pedaste et al., 2015). Misconceptions can be corrected, cultural interpretations can be clarified, and links among the four dimensions can be strengthened. This stage also gives students an opportunity to compare different interpretations and evaluate the relevance of their proposed actions (Aikenhead & Jegede, 1999; Pedaste et al., 2015).

Holistic Assessment

Assessment addresses knowledge, skills, attitudes, and reflective understanding (Gulikers et al., 2004). Teachers may use observation records, project rubrics, portfolios, written tasks, student presentations, and self-assessment (Gulikers et al., 2004; Panadero et al., 2017). Cognitive assessment should examine students' understanding of IPAS concepts, while skills assessment should address investigation, communication, collaboration, and problem solving (Gulikers et al., 2004).

Attitudinal assessment requires greater caution (Kollmuss & Agyeman, 2002). Religious awareness, environmental responsibility, and cultural appreciation should not be inferred from a single statement or activity (Kollmuss & Agyeman, 2002). Evidence should be collected across several learning activities through observation, reflection, and student work (Gulikers et al., 2004; Mann et al., 2009; Panadero et al., 2017). The purpose is to document students' developing understanding and participation rather than claim permanent character change after a limited learning period (Kollmuss & Agyeman, 2002).

Synthesis and Implications

The study demonstrates a gap between the curricular opportunity to use local culture and teachers' capacity to implement it systematically. The Merdeka Curriculum provides space for contextual and culturally relevant learning, but curriculum flexibility alone does not guarantee meaningful classroom practice. Teachers need pedagogical knowledge, contextual resources, collaborative support, and practical examples to translate cultural knowledge into IPAS instruction.

The findings further suggest that Sasak local wisdom should not be reduced to illustrations attached to textbook content. Its educational contribution lies in its capacity to connect scientific concepts, social phenomena, Islamic values, and environmental responsibilities within experiences that students recognize. This connection may make learning

more relevant and support students in interpreting knowledge through their cultural and moral environments.

The practical implications concern teacher development, instructional design, and community collaboration. Professional development should be sustained and based on the actual challenges teachers encounter. Schools should support learning communities and provide access to contextual resources. Cooperation with cultural and religious figures can help ensure that local knowledge is represented accurately and meaningfully.

The proposed framework offers a structured response to the limitations identified in the case, but it remains preliminary. Its feasibility, cultural appropriateness, and educational contribution need to be examined through further implementation, expert review, and research in schools with different characteristics. It should therefore be understood as a context-sensitive framework for adaptation rather than a standardized model ready for broad replication.

CONCLUSION

This study found that the integration of Sasak local wisdom into Natural and Social Sciences (*Ilmu Pengetahuan Alam dan Sosial*, IPAS) learning had not yet been implemented systematically. Although teachers recognized the relevance of students' cultural environments, they experienced difficulties in connecting IPAS learning outcomes with Sasak cultural practices, developing contextual instructional materials, and assessing the integration of scientific, social, religious, and environmental dimensions. The implementation was also constrained by limited access to local culture-based learning resources and the absence of sustained professional support. Consequently, Sasak local wisdom was generally used as supplementary information rather than as a central context for learning.

The findings nevertheless indicate that cultural practices such as *besiru* and *awig-awig* can provide meaningful contexts for connecting scientific concepts, social phenomena, Islamic values, and environmental responsibility. Based on these findings, the study proposes a preliminary implementation framework comprising contextual orientation, inquiry-based exploration, conceptual elaboration and problem analysis, value integration and reflection, contextual project development, presentation and collective reflection, and holistic assessment. This framework should not be interpreted as a validated instructional model, but as a context-sensitive proposition that may guide the development of culturally relevant IPAS learning.

The study also highlights the importance of strengthening teachers' pedagogical capacity through sustained, practice-based professional development. Support should include collaborative lesson planning, lesson study, the development of contextual teaching materials and assessments, and cooperation with traditional leaders, religious leaders, and local communities. Such support may help teachers integrate Sasak cultural knowledge more accurately and systematically while maintaining alignment with IPAS learning outcomes and the principles of the Merdeka Curriculum.

RECOMMENDATIONS

Future research should implement and evaluate the proposed framework in schools with different geographical, social, and institutional characteristics using mixed-methods, design-based, quasi-experimental, or longitudinal approaches to examine its feasibility, cultural appropriateness, and contribution to students' conceptual understanding, environmental responsibility, awareness of Islamic values, and appreciation of Sasak culture. Teachers and schools should also establish structured partnerships with traditional leaders, religious leaders, parents, and community practitioners to identify relevant cultural knowledge and incorporate it into teaching materials, classroom inquiry, student projects, and assessment. Educational authorities should support these efforts through sustained professional development, teacher learning communities, and access to validated local wisdom-based instructional resources, while allowing schools to adapt the framework to variations in Sasak cultural practices across communities.

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AUTHOR CONTRIBUTIONS STATEMENT

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Mukminah	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	
Hirlan	✓		✓	✓			✓			✓	✓	✓	✓	

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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