



Development of Islamic Education Curriculum Based on Local Wisdom to Foster Students Character in Integrated Islamic High Schools

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Abstract

Islamic Religious Education (PAI) in Integrated Islamic High Schools is expected to strengthen religious understanding, moral awareness, and student character. However, its implementation often remains normative, textbook-oriented, and weakly connected to students' socio-cultural realities. This study aimed to develop and evaluate a local wisdom-based PAI curriculum device that integrates the Merdeka Curriculum, Integrated Islamic School Network (JSIT) character standards, and Angkola-Mandailing values in Padangsidempuan City. Using a Research and Development design based on the 4D model, the study proceeded through Define, Design, Develop, and Disseminate stages. Data were collected through observation, interviews, curriculum document analysis, expert validation sheets, teacher and student practicality questionnaires, pre-test and post-test instruments, and character observation rubrics. The developed product consisted of contextualized learning objectives, learning objective sequences, teaching modules, student worksheets, and authentic assessment instruments. The findings showed that existing PAI curriculum tools had not systematically embedded local values such as Daliha Na Tolu, Poda Na Lima, Marsialapari, hasangapon, and hamajuon. Expert validation indicated that the product was very valid, with an overall feasibility score of 91.80%. Practicality testing also showed very practical results, with teacher and student response scores of 91.00% and 86.67%, respectively. Effectiveness testing produced an N-Gain score of 0.69, indicating moderate improvement approaching the high category. Conceptually, this study positions local wisdom as a substantive curriculum foundation rather than supplementary cultural content. Practically, it provides teachers with operational tools for designing contextual, meaningful, and character-oriented PAI learning in culturally diverse Islamic school settings.

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INTRODUCTION

Curriculum development has become an important agenda in contemporary education because schools are expected to respond not only to cognitive achievement but also to moral formation, cultural identity, and social transformation (Anapey, 2024; Jusubaidi et al., 2024). In Indonesia, this agenda has gained stronger relevance through the implementation of the Merdeka Curriculum, which gives schools greater flexibility to design learning according to students' needs, local contexts, and institutional characteristics (Lahiya et al., 2025). This flexibility is particularly

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important in Islamic Religious Education (PAI), where learning is expected to guide students beyond the mastery of religious concepts toward the internalization of Islamic values in everyday life (Astuti, 2026). PAI therefore has a strategic role as a formative curriculum space that connects faith, ethics, social responsibility, and cultural awareness (Latifah, 2025). However, curriculum flexibility will have limited impact if it is not translated into operational learning tools that are relevant to students' lived experiences (Lytras et al., 2022; Ng, 2022). For this reason, the development of a locally grounded PAI curriculum is necessary to make Islamic learning more meaningful, contextual, and character-oriented.

The need for contextual curriculum development becomes more urgent when viewed from the empirical condition of Islamic learning in Integrated Islamic High Schools. In practice, PAI learning often remains normative, textual, and dependent on nationally provided textbooks or institutional curriculum templates (Faishol et al., 2026). A similar condition was found in Integrated Islamic High Schools in Padangsidempuan City, where preliminary observation and document analysis showed that existing curriculum tools had not systematically integrated Angkola-Mandailing local wisdom into learning objectives, learning sequences, teaching modules, student worksheets, and assessment instruments. Teachers generally referred to national curriculum documents and JSIT standards, but the transformation of these documents into local cultural contexts remained limited (Sharma et al., 2023). Values such as Dalihan Na Tolu, Poda Na Lima, Marsialapari, partuturon, hasangapon, and hamajuon are familiar in students' family and community lives, yet they rarely appear as formal pedagogical resources in PAI learning (Ortega-Dela Cruz, 2023). As a result, students may understand Islamic teachings as abstract moral instructions rather than as values that are closely connected to their social and cultural practices. This condition indicates a gap between the normative objectives of PAI and the socio-cultural reality in which students construct moral meaning.

This issue is highly relevant in Padangsidempuan because Angkola-Mandailing society possesses a rich cultural heritage that is closely aligned with Islamic ethical principles (Sahrul et al., 2024). Dalihan Na Tolu emphasizes balanced social relations, respect, responsibility, and harmony, while Marsialapari reflects cooperation and mutual assistance that resonate with the Islamic principle of ta'awun (Yusuf et al., 2025). Poda Na Lima contains moral and spiritual meanings related to physical, social, and inner purification, which are consistent with the objectives of character formation in Islamic education (Hawa et al., 2023; Susanti, 2023). These cultural values have strong potential to bridge the gap between religious doctrine and students' daily moral reasoning. However, globalization, digital culture, and changing youth behavior have gradually weakened students' familiarity with local wisdom and reduced its function as a moral reference (Wahidin & Sumantri, 2023). When local culture is not positioned as part of the learning process, Islamic education risks becoming detached from the symbolic world through which students understand ethical conduct. Therefore, integrating local wisdom into the PAI curriculum is important to strengthen religious understanding, cultural belonging, and character resilience.

The development of a local wisdom-based PAI curriculum is supported by both modern learning theories and Islamic educational thought. Constructivist theory argues that students build knowledge through interaction with their social and cultural environment, making contextual experience a crucial foundation for meaningful learning (Ogodo, 2024). Ausubel's theory of meaningful learning also explains that new knowledge becomes more durable when it is connected to learners' prior knowledge and lived experiences (Bryce & Blown, 2024). From the perspective of Islamic education, Al-Ghazali's emphasis on moral purification, Ibn Khaldun's concern for gradual and socially relevant learning, and Al-Attas' concept of ta'dib all affirm that education should integrate knowledge, ethics, and adab (In'ami et al., 2025). These theoretical perspectives suggest that Islamic learning should not be separated from students' cultural environment as long as the local values are consistent with Islamic principles. Local wisdom should therefore be positioned not as decorative content, but as a substantive pedagogical foundation for developing Islamic character. This theoretical foundation also strengthens the need to connect national curriculum policy, Islamic school identity, and community-based moral resources within one curriculum framework.

Previous studies have examined the relationship between local wisdom, Islamic education, and character formation from various perspectives. Mundofi, (2025) emphasized the importance of contextual approaches in PAI curriculum development, but the discussion mainly addressed general

pedagogical principles rather than complete curriculum devices. Yasmiati et al., (2026) showed that Integrated Islamic Schools have distinctive institutional goals in combining religious values, academic achievement, and character education, yet their studies did not specifically explain how local cultural values can be operationalized within PAI curriculum tools. Ansori et al., (2025) demonstrated the relevance of Mandailing-Angkola cultural values for strengthening religious character, but their works were more focused on value internalization and cultural meaning than on systematic curriculum development. Mariyono, (2024) discussed the integration of Islamic values in local and multicultural educational contexts, while Hanapi et al., (2025) highlighted the need to incorporate local wisdom into PAI curriculum development. In a broader context, Akinsola, (2025) argued that socio-culturally responsive curriculum co-creation can make education more relevant to learners' realities. These studies confirm the pedagogical potential of culture-based Islamic education, but they do not yet provide a validated and empirically tested curriculum prototype for Integrated Islamic High Schools.

Despite the growing attention to local wisdom in Islamic education, several limitations remain in the existing literature. First, most studies position local wisdom as cultural content, moral illustration, or classroom strategy rather than as a structural basis for designing curriculum components. Second, previous research rarely develops a complete set of PAI curriculum tools that includes contextualized learning outcomes, learning objective sequences, teaching modules, student worksheets, authentic assessment rubrics, and character evaluation instruments. Third, studies on Islamic school curriculum tend to discuss either national curriculum policy or institutional Islamic identity, while the integration of the Merdeka Curriculum, JSIT standards, and Angkola-Mandailing local wisdom has not been systematically examined. Fourth, empirical testing of validity, practicality, and effectiveness remains limited, especially at the senior high school level in Integrated Islamic School settings. This gap is important because curriculum innovation cannot be considered academically strong if it only offers conceptual recommendations without producing operational tools and measurable evidence. Unlike previous studies that mainly examined local wisdom as cultural content or instructional support, this study develops and empirically tests a complete PAI curriculum device that integrates national curriculum policy, JSIT character standards, and Angkola-Mandailing values.

Based on this gap, the present study aims to develop a local wisdom-based Islamic Religious Education curriculum for Integrated Islamic High Schools in Padangsidempuan City. Specifically, this study seeks to describe the conceptual design of the curriculum, develop curriculum devices that integrate the Merdeka Curriculum, JSIT standards, and Angkola-Mandailing local wisdom, and examine the validity, practicality, and effectiveness of the developed product. The theoretical contribution of this study lies in extending the discourse on contextual Islamic education by positioning local wisdom as a substantive curriculum foundation rather than as supplementary cultural content. The practical contribution lies in providing operational curriculum tools, including contextualized learning outcomes, learning objective sequences, teaching modules, student worksheets, authentic assessment rubrics, and character evaluation instruments. These tools are designed to help teachers connect Islamic teachings with students' socio-cultural realities in a more systematic and measurable way. Therefore, this study offers a curriculum development model that can strengthen character education through the integration of national curriculum flexibility, Islamic school identity, and local cultural wisdom.

METHOD

Research Design

This study employed a Research and Development (R&D) design using the Four-D (4D) model developed by (Hariyanto et al., 2022). The model consists of four stages: Define, Design, Develop, and Disseminate. This design was selected because the study aimed to develop, validate, and test a local wisdom-based Islamic Religious Education (PAI) curriculum device rather than merely describe an existing curriculum phenomenon. The R&D approach is appropriate for producing educational products and examining their feasibility through expert validation, practicality assessment, and effectiveness testing (Ananda & Usmeldi, 2023). The developed product integrated the Merdeka Curriculum, Integrated Islamic School Network (JSIT) standards, and Angkola-Mandailing local wisdom.

Research Site, Time, and Participants

The study was conducted at SMA Islam Terpadu Darul Hasan Padangsidempuan, North Sumatra, Indonesia, from July 2025 to February 2026. The school was selected because it implements the Merdeka Curriculum and JSIT standards within the socio-cultural context of Angkola-Mandailing society. The participants consisted of PAI teachers, Grade X students, curriculum administrators, school leaders, and eight expert validators. The validators included experts in PAI content, Angkola-Mandailing culture, instructional design, language, and educational assessment. Participants were selected using purposive sampling because they had direct involvement in the development, implementation, or evaluation of the curriculum product (Matiki et al., 2023). Grade X students were selected because they belong to Phase E of the Merdeka Curriculum, which became the focus of this study. The final number of teachers and students involved in the limited trial should be reported explicitly in the final manuscript.

Research Instruments

Data were collected using interview guidelines, observation sheets, curriculum document analysis sheets, expert validation forms, practicality questionnaires, pre-test and post-test instruments, and character observation rubrics. The interview guidelines explored curriculum needs, teacher constraints, student responses, and relevant Angkola-Mandailing values. The observation and document analysis sheets were used to examine existing PAI learning practices, curriculum documents, teaching modules, student worksheets, and assessment tools. The expert validation form assessed content relevance, cultural accuracy, instructional design, language clarity, assessment quality, and alignment between learning objectives, learning activities, and local wisdom values. The practicality questionnaires measured clarity, ease of use, attractiveness, contextual relevance, time efficiency, and classroom implementability from teacher and student perspectives. The pre-test and post-test measured students' cognitive understanding, while the character rubric assessed observable affective indicators such as respect, responsibility, cooperation, honesty, and social care.

Instrument Validity and Reliability

Instrument validity was examined through expert judgment involving specialists in Islamic education, local culture, instructional design, language, and educational evaluation. The expert validation form used a five-point Likert scale, ranging from 1 = very invalid to 5 = very valid, to measure the feasibility of the developed curriculum device (Curelaru & Curelaru, 2024). Validator comments were analyzed qualitatively and used to revise Prototype I into Prototype II. The practicality questionnaire should be tested for internal consistency using Cronbach's alpha, with a coefficient of ≥ 0.70 considered acceptable for educational research (Hossan et al., 2025). The pre-test and post-test items were reviewed to ensure alignment with learning objectives, cognitive level, and contextual relevance. When sufficient item-level data are available, item difficulty and item discrimination analyses should be conducted to strengthen the quality of the test.

Data Collection Procedures

Data collection followed the four stages of the 4D model. In the Define stage, the researchers conducted preliminary observation, interviews, curriculum document analysis, student characteristic analysis, material analysis, and identification of Angkola-Mandailing local wisdom values. In the Design stage, the researchers developed contextualized learning outcomes, learning objective sequences, teaching modules, student worksheets, and assessment instruments by integrating the Merdeka Curriculum, JSIT standards, and local wisdom values. In the Develop stage, Prototype I was validated by expert validators, revised based on quantitative scores and qualitative feedback, and implemented in a limited classroom trial. During the trial, students completed the pre-test before the intervention and the post-test after the intervention, while teachers and students completed practicality questionnaires after using the product. In the Disseminate stage, the revised curriculum device was introduced to school stakeholders and PAI teachers through academic discussion, teacher assistance, and institutional dissemination.

Data Analysis

Qualitative data from interviews, observations, document analysis, and validator comments were analyzed through data reduction, coding, categorization, theme development, and conclusion

drawing (Reyes et al., 2024; Yaakop, 2023). Quantitative data from expert validation and practicality questionnaires were analyzed using descriptive percentages. The percentage score was obtained by dividing the total empirical score by the maximum ideal score and multiplying it by 100. The results were interpreted using four categories: 85%–100% = very valid/very practical, 70%–84% = valid/practical, 55%–69% = fairly valid/fairly practical, and below 55% = less valid/less practical. Product effectiveness was analyzed using the Normalized Gain (N-Gain) score by comparing students' pre-test and post-test results (Ratnasari et al., 2025). An N-Gain score greater than 0.70 was categorized as high, 0.30–0.70 as moderate, and less than 0.30 as low. To strengthen the analysis, a paired-sample t-test should be used when the data are normally distributed, while the Wilcoxon signed-rank test should be used when normality is not met, with a significance level of $p < 0.05$.

Research Ethics

The study followed ethical principles in educational research. Permission was obtained from the school before data collection was conducted. Participants were informed about the purpose of the study, the procedures, and the voluntary nature of their involvement. Since the student participants were minors, the research was conducted with school approval and under teacher supervision. Participants' identities were kept confidential, and the data were reported in aggregate form to protect anonymity. The data were used only for academic purposes, and the researchers maintained cultural sensitivity by involving Angkola-Mandailing cultural experts to ensure accurate and respectful representation of local values (Sibarani et al., 2025).

RESULTS AND DISCUSSION

Results

The results are presented according to the four stages of the 4D development model: Define, Design, Develop, and Disseminate. This structure shows how the study progressed from needs analysis to curriculum design, expert validation, limited implementation, and product dissemination. The product developed in this study was a local wisdom-based Islamic Religious Education curriculum device for Grade X students in an Integrated Islamic High School. The product consisted of contextualized learning objectives, learning objective sequences, teaching modules, student worksheets, and authentic assessment instruments. All components were designed by integrating the Merdeka Curriculum, JSIT standards, and Angkola-Mandailing local wisdom.

Results of the Define Stage

The Define stage identified the gap between the expected PAI curriculum and the actual learning practices implemented at SMA Islam Terpadu Darul Hasan Padangsidimpuan. The analysis covered front-end analysis, needs analysis, curriculum analysis, student characteristic analysis, material analysis, and local wisdom analysis. The results showed that PAI learning was still largely textbook-oriented, normative, and focused on completing curriculum targets. Local wisdom values had not been systematically integrated into learning objectives, teaching materials, learning activities, student worksheets, or assessment instruments. Although the school had a strong commitment to Islamic character formation, the available curriculum documents did not yet provide operational guidance for connecting Islamic values with the socio-cultural realities of Angkola-Mandailing students.

The needs analysis showed that teachers required curriculum tools that were more contextual, structured, and applicable in classroom practice. Teachers reported difficulties in translating Learning Outcomes into operational Learning Objectives and arranging Learning Objective Sequences that were coherent and relevant to students' daily lives. The curriculum analysis also showed that the flexibility of the Merdeka Curriculum had not been fully used to integrate local cultural values. Assessment practices were still dominated by summative tests, while diagnostic and formative assessments had not been consistently implemented. These findings confirmed the need to develop PAI curriculum devices that could connect national curriculum requirements, JSIT character standards, and local wisdom values in a systematic manner.

Student characteristic analysis revealed that most Grade X students were familiar with Angkola-Mandailing cultural practices in family and community life. Values such as respect for parents, kinship ethics, deliberation, cooperation, and social responsibility were part of their social experiences. However, students' understanding of these values remained partial because they were

rarely discussed explicitly in PAI learning. Students showed stronger engagement when religious materials were connected to examples from their everyday cultural environment. This finding indicated that local wisdom had strong potential to increase the relevance and meaningfulness of PAI learning.

Material analysis showed that several PAI topics in Phase E were suitable for contextualization with Angkola-Mandailing local wisdom. Topics such as social ethics, faith, noble character, muamalah, ukhuwah Islamiyah, and religious moderation had strong connections with local values. Dalihan Na Tolu was relevant to social harmony and respect; Poda Na Lima was relevant to inner and outer purification; Marsialapari was relevant to cooperation and mutual assistance; hasangapon was relevant to dignity and moral responsibility; and hamajuon was relevant to progress and positive achievement. The relationship between curriculum needs and local wisdom values is summarized in Table 1.

Table 1. Summary of Findings from the Define Stage

Aspect Analyzed	Main Findings	Implications for Product Development
Existing PAI learning	Learning was normative, textual, and textbook-oriented	Teaching modules needed to be contextualized with students' cultural experiences
Curriculum documents	CP, TP, ATP, modules, and assessments had not systematically integrated local wisdom	Curriculum devices needed explicit local wisdom integration
Teacher needs	Teachers needed practical tools for translating CP into TP, ATP, modules, and assessments	The product needed to provide structured and operational learning tools
Student characteristics	Students were familiar with local values but had limited conceptual understanding	Learning activities needed to connect Islamic concepts with local cultural practices
PAI material	Social ethics, faith, character, muamalah, and moderation were suitable for contextualization	Local wisdom needed to be mapped to relevant PAI elements
Local wisdom	Dalihan Na Tolu, Poda Na Lima, Marsialapari, hasangapon, and hamajuon aligned with Islamic values	Local values could function as pedagogical contexts and character resources

Table 1 shows that the need for curriculum development was pedagogical, cultural, and instructional. The findings indicate that the existing curriculum required a clearer operational bridge between Islamic teachings, national curriculum demands, JSIT character formation, and students' cultural background.

Results of the Design Stage

The Design stage produced the initial structure of the local wisdom-based PAI curriculum device. The design began by analyzing the Learning Outcomes of PAI Phase E and translating them into more specific Learning Objectives. These objectives were then arranged into Learning Objective Sequences that reflected the progression of student competencies from basic understanding to contextual application. The design also integrated JSIT character standards and Angkola-Mandailing local wisdom as learning contexts. The output of this stage was Prototype I, consisting of Learning Objective Sequences, teaching modules, student worksheets, and assessment instruments.

The integration was designed across five main elements of PAI: Qur'an and Hadith, faith, morality, fiqh, and Islamic civilization history. Each element was connected with relevant local wisdom values and character dimensions. Local wisdom was not positioned as additional illustration, but as a contextual frame for understanding and practicing Islamic values. The conceptual framework of the developed curriculum device is presented in Figure 1.

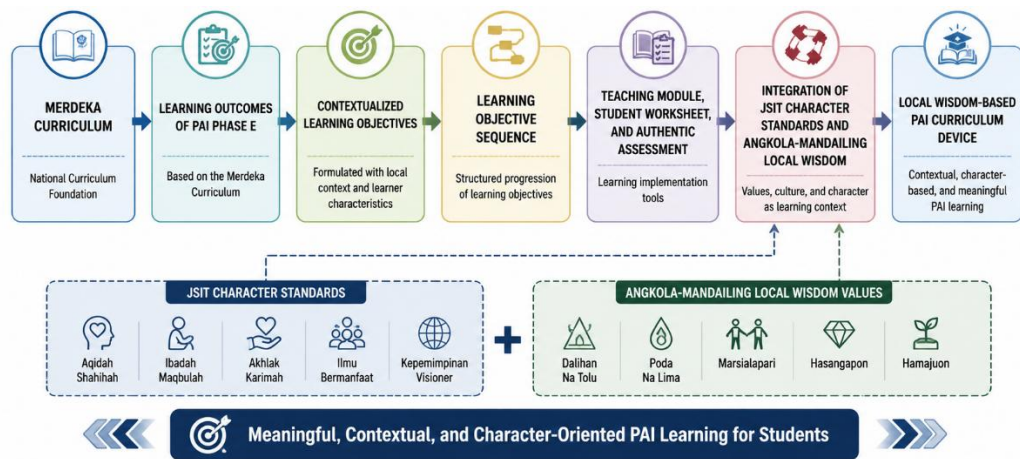


Figure 1. Framework of the Developed Local Wisdom-Based PAI Curriculum

Figure 1 illustrates the conceptual framework of the developed curriculum device. The framework shows that the product was designed by translating national learning outcomes into contextual learning tools while integrating JSIT character standards and Angkola-Mandailing values as substantive pedagogical foundations.

Table 2. Integrative Design of PAI Learning Objective Sequence Based on Local Wisdom

PAI Element	Main Learning Topic	Specific Learning Objective	Pancasila Student Profile Dimension	JSIT Character Reinforcement
Qur'an and Hadith	Fastabiqul khairat and work ethic	Students analyze verses and hadiths on competing in goodness, create creative da'wah content, and practice discipline	Faithful, critical, creative	Islamic work ethic and da'wah bil hikmah
Faith	Syu'abul iman	Students analyze the meaning and evidence of branches of faith and present their implementation in adolescent social relations	Critical reasoning and communication	Aqidah shahihah and spiritual strengthening
Morality	Akhlak mahmudah and akhlak mazmumah	Students analyze the impact of good and bad behavior, create moral campaign projects, and practice honesty	Noble character and cooperation	Tazkiyatun nafs and integrated character project
Fiqh	Muamalah and al-kulliyat al-khamsah	Students explain Islamic legal principles, analyze fair economic practices, and simulate honest transactions	Critical reasoning and independence	Sharia obedience and Islamic entrepreneurship
Islamic Civilization History	The role of scholars in spreading Islam	Students analyze the history of Islamic propagation, construct a chronology of peaceful da'wah, and emulate scholarly tolerance	Global diversity and creativity	Wasathiyah da'wah and scholarly role model

Table 2 shows that each PAI element was connected with local wisdom in a structured manner. This design enabled students to understand Islamic concepts through cultural values that were already present in their social environment.

The teaching module was then developed based on the structure of the Merdeka Curriculum. Each module included learning identity, learning objectives, initial assessment, core activities, student worksheets, formative assessment, summative assessment, and reflection activities. The learning activities were designed using contextual cases, cultural narratives, group discussions, project-based tasks, and reflective questions. The student worksheets required students to analyze local cultural practices, connect them with Islamic teachings, and formulate moral responses to everyday situations. The assessment instruments included diagnostic, formative, summative, and affective assessments.

Results of the Develop Stage

The Develop stage aimed to determine the validity, practicality, and effectiveness of the developed product. Prototype I was evaluated by eight expert validators consisting of PAI content experts, Angkola-Mandailing cultural experts, instructional design experts, language experts, and educational assessment experts. The expert validation focused on content relevance, cultural accuracy, instructional design quality, language clarity, assessment appropriateness, and alignment among curriculum components. The validation results are presented in Table 3.

Table 3. Expert Validation Results of Prototype I

Validation Aspect	Mean Score	Feasibility Percentage	Category	Follow-up Decision
Content and cultural relevance	4.67	93.40%	Very valid	Minor revision
Instructional design	4.56	91.10%	Very valid	Minor revision
Language clarity	4.58	90.80%	Very valid	Minor revision
Overall average	4.60	91.80%	Very valid	Feasible for limited trial

Table 3 indicates that Prototype I met the criteria of a very valid curriculum product. The highest score was obtained in content and cultural relevance, showing that the integration of Angkola-Mandailing local wisdom was considered appropriate for PAI learning. The instructional design and language aspects also reached very valid categories, although validators recommended several minor revisions.

The qualitative feedback from validators provided important directions for product improvement. Content and cultural experts suggested that local proverbs and cultural expressions should be included more explicitly as opening narratives in teaching modules. Language experts recommended consistency in Arabic transliteration and simplification of several complex sentences in student worksheets. Assessment experts suggested that the affective rubric should distinguish more clearly between cognitive understanding of local values and observable character behavior. Based on these comments, Prototype I was revised into Prototype II. The main revision points are summarized in Table 4.

Table 4. Summary of Expert Feedback and Product Revisions

Validator Feedback	Revision Made in Prototype II
Local cultural narratives were not sufficiently explicit in some modules	Cultural proverbs and local cases were added as learning triggers
Arabic transliteration was not fully consistent	Terms were standardized across modules and worksheets
Several worksheet instructions were too general	Instructions were revised into more specific and student-friendly tasks
Affective assessment indicators were not sufficiently measurable	Rubrics were revised to include observable indicators of respect, responsibility, cooperation, honesty, and social care
Integration between PAI concepts and local wisdom needed clearer mapping	Additional mapping between PAI topics and local values was added

Table 4 shows that the revision process improved the clarity, cultural relevance, and measurability of the product. The revision also strengthened the alignment between learning objectives, learning activities, and assessment.

After revision, Prototype II was implemented in a limited classroom trial with Grade X students. Practicality was measured using teacher and student response questionnaires after the

product was used in PAI learning. The results showed that the teacher practicality score reached 91.00%, while the student practicality score reached 86.67%. Both scores were categorized as very practical. The results are presented in Table 5.

Table 5. Practicality Test Results

Respondent Group	Practicality Percentage	Category	Interpretation
Teachers	91.00%	Very practical	The product was easy to use, relevant to teaching needs, and supportive of contextual learning
Students	86.67%	Very practical	The product was understandable, engaging, and connected to students' cultural experiences
Overall tendency	88.84%	Very practical	The product was feasible for classroom implementation

Table 5 shows that the developed curriculum device was positively received by both teachers and students. Teachers considered the modules useful because they provided structured learning steps, cultural cases, and assessment tools. Students also reported that the materials were easier to understand because the examples were taken from familiar cultural practices.

The effectiveness of the product was measured by comparing students' pre-test and post-test scores using the N-Gain score. The analysis produced an N-Gain score of 0.69. This score falls into the moderate category and approaches the high category. The result indicates that the developed product contributed to improving students' cognitive understanding of PAI materials after the learning intervention. The effectiveness result is shown in Table 6.

Table 6. Effectiveness Test Result Based on N-Gain Score

Assessment Component	Result	Category	Interpretation
N-Gain score	0.69	Moderate, approaching high	The product improved students' learning outcomes after implementation
Learning impact	Positive improvement	Effective tendency	Students showed better understanding of PAI concepts connected to local wisdom

Table 6 indicates that the local wisdom-based PAI curriculum device had a positive instructional effect. Although the N-Gain score did not reach the high category, it showed meaningful improvement and confirmed that contextual learning helped students connect Islamic concepts with socio-cultural experiences.



Figure 2. Development and Evaluation Process of the Curriculum Product

Figure 2 summarizes the development and evaluation process of the curriculum product. It shows that the final product was generated through needs-based design, expert validation, revision, limited implementation, and evaluation of validity, practicality, and effectiveness.

Results of the Disseminate Stage

The Disseminate stage was conducted after the product had been validated, revised, and tested in a limited classroom setting. The final product was introduced to school leaders, curriculum administrators, and PAI teachers through academic discussion and teacher assistance. The

dissemination focused on explaining the structure of the curriculum device, the integration of Angkola-Mandailing local wisdom, the use of teaching modules, and the implementation of authentic assessments. Teachers were also guided on how to adapt the product for different PAI topics and classroom situations.

The dissemination results indicated that the product was considered relevant for strengthening contextual PAI learning in Integrated Islamic High Schools. School stakeholders viewed the product as useful because it provided a practical model for connecting the Merdeka Curriculum, JSIT character standards, and local cultural values. The final product was therefore recommended as an alternative curriculum device for PAI learning in schools with similar socio-cultural characteristics.

Discussion

The findings indicate that the main problem in PAI curriculum implementation was not the absence of Islamic values, but the weak transformation of those values into contextual and operational learning tools. The Define stage revealed that PAI learning remained largely normative, textbook-oriented, and insufficiently connected to students' socio-cultural experiences. Conceptually, this condition confirms the constructivist view that learning becomes less meaningful when knowledge is separated from the social environment in which learners construct understanding (Ogodo, 2024). The finding is consistent with studies showing that contextual and culturally responsive curriculum design can strengthen student engagement and moral relevance in religious education (Mundofi, 2025; Hanapi et al., 2025; Akinsola, 2025). However, this study extends previous work by showing that contextualization must move beyond classroom examples and be embedded into curriculum components, including learning objectives, learning sequences, modules, worksheets, and assessment instruments. The implication is that local wisdom should not be treated as an additional cultural ornament, but as a pedagogical bridge that enables students to interpret Islamic teachings through familiar moral and social experiences.

The curriculum design developed in this study demonstrates that the integration of the Merdeka Curriculum, JSIT standards, and Angkola-Mandailing local wisdom can produce a more coherent framework for character-oriented Islamic learning. The Design stage shows that each PAI element can be linked to specific local values, such as Dalihan Na Tolu for social harmony, Poda Na Lima for moral purification, Marsialapari for cooperation, hasangapon for dignity, and hamajuon for constructive progress. This finding supports meaningful learning theory, which emphasizes that new knowledge becomes more durable when connected to prior knowledge and lived experience (Bryce & Blown, 2024). It also resonates with Islamic educational thought, particularly the idea that education should cultivate adab, moral consciousness, and socially responsible conduct (In'ami et al., 2025). Compared with previous studies that mainly discussed local wisdom as moral content or cultural identity (Ansori et al., 2025; Sahrul et al., 2024; Yusuf et al., 2025), this study offers a more operational model by positioning local wisdom as a structural element in curriculum design. This contribution is important because it shows how national curriculum flexibility can be translated into locally meaningful Islamic education without weakening formal curriculum standards.

The expert validation results confirm that the developed curriculum device had strong feasibility in terms of content, cultural relevance, instructional design, and language clarity. The highest validation score was obtained in the content and cultural relevance aspect, indicating that the integration of Angkola-Mandailing values was considered appropriate for PAI learning. This result supports the argument that local culture can become a legitimate source of curriculum development when its values are compatible with Islamic principles and educational objectives. It is also consistent with studies emphasizing that culturally grounded curriculum design can strengthen the relationship between school learning and community-based moral resources (Hawa et al., 2023; Susanti, 2023; Wahidin & Sumantri, 2023). Nevertheless, the validators' suggestions show that cultural integration requires careful academic control. Local expressions, proverbs, and moral narratives must be presented accurately, while assessment indicators must distinguish between students' cognitive understanding of local values and observable character behavior. This point is critical because an uncritical use of local wisdom may reduce culture to symbolic decoration, whereas a well-validated curriculum can transform it into a measurable and accountable pedagogical resource.

The practicality findings show that the curriculum device was well received by both teachers and students, although teacher responses were slightly higher than student responses. This pattern suggests that the product was particularly useful for teachers because it provided structured guidance for translating curriculum demands into classroom practice. For students, the product was meaningful because it connected Islamic concepts with familiar cultural examples, but the slightly lower score may indicate that students still needed adaptation to learning tasks that required reflection, cultural interpretation, and moral reasoning. This finding aligns with studies showing that contextual and culturally responsive learning can improve relevance and motivation, but its effectiveness depends on teacher facilitation, task clarity, and students' readiness to engage in reflective learning (Latifah, 2025; Sharma et al., 2023; Yasmianti et al., 2026). The result also expands previous findings on Integrated Islamic Schools by demonstrating that institutional character standards become more practical when supported by concrete modules, worksheets, and authentic assessment tools. Therefore, the practicality of the product lies not only in its ease of use, but also in its ability to reduce the gap between curriculum policy, teacher planning, and student learning experience.

The effectiveness result, indicated by an N-Gain score of 0.69, shows that the local wisdom-based PAI curriculum device produced a meaningful improvement in students' learning outcomes. Although the score remained in the moderate category and did not fully reach the high category, it approached the upper threshold and therefore indicates a positive instructional effect. This finding supports the assumption that students understand religious concepts more effectively when learning materials are connected to their cultural environment and everyday moral experiences. At the same time, the moderate category suggests that curriculum innovation alone may not automatically produce maximum learning gains without sufficient implementation time, teacher mastery, repeated practice, and broader assessment of affective change. This interpretation is consistent with studies arguing that culturally responsive curriculum development requires sustained pedagogical support rather than one-time implementation (Akinsola, 2025; Hanapi et al., 2025; Mariyono, 2024). The contribution of this study lies in offering a validated and practically tested curriculum prototype that integrates national curriculum policy, Islamic school identity, and local wisdom into one operational model. In the broader literature, this study adds a new perspective by showing that local wisdom-based Islamic education can be developed not only as a conceptual discourse, but also as a measurable curriculum product for strengthening character formation in Integrated Islamic High Schools.

CONCLUSION

This study developed a local wisdom-based Islamic Religious Education curriculum device for Integrated Islamic High Schools in Padangsidempuan City by integrating the Merdeka Curriculum, JSIT character standards, and Angkola-Mandailing local wisdom. The findings show that the developed product was able to respond to the main curriculum gap, namely the weak connection between normative PAI learning and students' socio-cultural realities. Through the 4D development process, the study produced contextualized learning objectives, learning objective sequences, teaching modules, student worksheets, and authentic assessment instruments. Expert validation confirmed that the product was very valid, with an overall feasibility score of 91.80%. The practicality test also showed positive responses from teachers and students, with scores of 91.00% and 86.67%, respectively. The effectiveness test produced an N-Gain score of 0.69, indicating a moderate improvement approaching the high category.

These findings indicate that Angkola-Mandailing local wisdom can function as a substantive pedagogical foundation for strengthening Islamic character education, rather than merely as supplementary cultural content. Values such as Dalihan Na Tolu, Poda Na Lima, Marsialapari, hasangapon, and hamajuon helped bridge Islamic teachings with students' lived cultural experiences. The theoretical contribution of this study lies in extending contextual Islamic education by positioning local wisdom as a structural component of curriculum design. Practically, the developed curriculum device offers teachers an operational model for designing PAI learning that is more meaningful, culturally relevant, and character-oriented. However, the effectiveness result should be interpreted carefully because the N-Gain score has not yet reached the high category. Future studies

are recommended to test this curriculum model with a larger sample, longer implementation period, and stronger statistical analysis to examine its broader impact on cognitive, affective, and character development.

AUTHOR CONTRIBUTIONS STATEMENT

Nuryanti Siregar conceived the study, designed the research methodology, conducted the investigation, developed the curriculum product, performed the formal data analysis, curated the research data, prepared the original manuscript draft, and coordinated the overall implementation of the study. Zulfani Sesmiarni contributed to the conceptualization of the research, supervised the study, validated the research design and developed product, critically reviewed the methodology, and revised the manuscript for important intellectual content. Arifmiboy participated in data collection, investigation, formal data analysis, product validation, data visualization, and manuscript revision. Siti Khamim contributed to curriculum evaluation, validation of the developed product, interpretation of the findings, language refinement, quality assurance, and critical revision of the manuscript. Haida Umiera Hashim provided overall academic supervision, contributed to the conceptual framework, critically reviewed and refined the manuscript, interpreted the research findings, and approved the final version for publication.

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