

Implementation of the Merdeka Curriculum in Islamic Religious Education and Character Education: A Multisite Study at SMA Negeri 1 and 2 Sibolga

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ABSTRACT

Purpose – This study aims to examine the implementation of the Merdeka Curriculum in the subject of Islamic Religious Education (PAI) and Character Education at SMA Negeri 1 and SMA Negeri 2 Sibolga, focusing on the aspects of planning, implementation, and evaluation. It addresses the need for empirical evidence regarding the application of character-based curriculum practices in non-metropolitan areas, particularly within the context of contextual and transformative religious education.

Design/methods/approach – Employing a qualitative descriptive approach and a multisite study design, this research involves participatory observation, in-depth interviews, and curriculum document analysis. Data were analyzed through a cross-site thematic approach to uncover convergent and divergent patterns in the implementation of the Merdeka Curriculum, including differentiated learning strategies and the application of project-based learning (P5).

Findings – SMA Negeri 1 implemented a gradual approach through structured training, while SMA Negeri 2 adopted a more responsive model through independent teacher exploration and collective reflection. Teacher readiness, digital infrastructure, participatory leadership, and active student engagement emerged as key factors. Project-based learning and formative assessment enhanced student engagement and comprehension. Challenges included disparities in teacher understanding and low student learning autonomy.

Research implications – The findings provide strategic guidance for schools to develop adaptive and participatory implementation of the Merdeka Curriculum through reflective training, technology integration, and learning approaches that are responsive to student needs.

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1. Introduction

The rapid advancement of science and technology has been a primary driver of curriculum change. In the digital era, technological and research developments continuously generate new knowledge that necessitates adjustments in educational systems (Fadliansyah & Hindun, 2023; Twining et al., 2021). A static curriculum is no longer adequate to meet the needs of students who will face emerging challenges and opportunities in the future. Curriculum reform is essential to ensure that education remains relevant, adaptive, and capable of equipping students with skills aligned with the demands of the times. On the other hand, technological development also influences the way teachers teach and students learn. Digital technology enables more interactive, flexible, and project-based learning methods that stimulate the development of critical thinking, creativity, and collaborative skills (Ginanjar et al., 2024; Selfa-Sastre et al., 2022). Therefore, curricula must adapt to these developments



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not only by updating content but also by integrating technology into the learning process and emphasizing the skills required in the digital age.

Curriculum reform is also influenced by broader societal dynamics, including industrial, production, technological developments, as well as political orientations and state practices. As industries advance, the demand for skilled labor and competencies relevant to the workforce becomes more pressing. The increasingly modern and complex patterns of production compel the education system to align itself with these new demands (Tintingon et al., 2023; Valiente Bermejo et al., 2022). Consequently, the curriculum needs to be updated to produce graduates who are competitive and able to contribute to evolving industrial sectors.

The curricula implemented from the 1947 Curriculum to the 2013 Curriculum (K-13) emphasized the development of basic competencies, character, and 21st-century skills (Wulandari et al., 2023). However, several aspects remained unfulfilled, such as limited flexibility in the learning process, insufficient student engagement in developing critical thinking skills, and suboptimal use of technology in education. Additionally, fostering character development and its application in daily life continues to pose significant challenges (Setiyorini & Setiawan, 2023).

Evaluations of the 2013 Curriculum have highlighted several weaknesses, including overly dense content, lack of synchronization across educational levels, excessive administrative burdens on teachers, and limited flexibility in field implementation. These issues have made it difficult for the curriculum to adapt to regional, school, and student-specific needs. To address these limitations, the Merdeka Curriculum was introduced with a more flexible approach, allowing learning to be tailored to students' potential and interests while emphasizing character education, the Pancasila Student Profile, and 21st-century skills. This curriculum retains the strengths of its predecessors while promoting a more inclusive, relevant, and adaptive education system in response to contemporary changes (Azizah & Prasetyo, 2023).

The Merdeka Curriculum is a new approach in Indonesia's education system, providing flexibility for schools and teachers to adapt learning to the needs and potential of students. It was developed as a response to the challenges of the previous curriculum, such as excessive content load, limited flexibility, and lack of real-world relevance (Asfiati, 2023; Wijayanti et al., 2024). By emphasizing student-centered learning, the Merdeka Curriculum promotes character development through the Pancasila Student Profile and the mastery of 21st-century skills such as creativity, collaboration, and technological literacy. The goal is to create a more adaptive, inclusive, and relevant education system that retains the beneficial aspects of previous curricula (Syahrir et al., 2024).

The Merdeka Curriculum introduces several key innovations, such as simplifying subject matter to focus on core competencies, granting teachers the autonomy to design instruction based on students' needs, and strengthening project-based learning to foster creativity and critical thinking skills. The curriculum also highlights the importance of character education through a flexible and contextual approach (Hadi et al., 2023). The government's long-term plan is to fully implement the Merdeka Curriculum as the national standard beginning in the 2024/2025 academic year. Through its more inclusive and relevant framework, the Merdeka Curriculum is expected to produce a generation of students who are excellent, well-rounded, and prepared to meet global challenges.

SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga are two public high schools in Sibolga City, North Sumatra Province, that have implemented the Merdeka Curriculum, particularly in the subject of Islamic Religious Education (PAI) and Character Education. SMA Negeri 1 Sibolga began implementation in 2023 for grades X and XI, whereas SMA Negeri 2 Sibolga initiated implementation in 2022 for grades X, XI, and XII. This is in accordance with the Regulation of the Minister of Education, Culture, Research, and Technology (Permendikbudristek) No. 56 of 2022, which provides guidelines for implementing the Merdeka Curriculum at primary and secondary education levels. The regulation

grants schools the autonomy to adopt the Merdeka Curriculum based on their readiness while encouraging a gradual transition towards full adoption by the 2024/2025 academic year.

Preliminary observations indicate that the implementation of the Merdeka Curriculum in SMA Negeri 1 and SMA Negeri 2 Sibolga—specifically in Islamic Religious Education (PAI) and Character Education—demonstrates both intriguing developments and significant challenges. During implementation, both schools have attempted to integrate the values of the Pancasila Student Profile into PAI and Character Education, including a focus on character strengthening through project-based learning that is relevant to local and religious contexts. However, several technical and non-technical obstacles have been encountered in the field.

One major issue observed in the planning stage is that many PAI teachers have yet to develop a comprehensive understanding of the fundamental principles of the Merdeka Curriculum, resulting in suboptimal instructional design that often remains conventional. In implementation, challenges include limited collaborative and contextual teaching methods, inadequate digital infrastructure, and difficulties in integrating religious values with 21st-century competencies. In the evaluation phase, teachers' capacity to design appropriate assessments remains an area in need of improvement. While there is support from school principals and enthusiasm among teachers, the main challenges include limited resources, lack of training, and the gap between policy expectations and actual school conditions.

Previous studies reveal that the most prominent gap lies in the lack of empirical evidence regarding the implementation of the Merdeka Curriculum, especially in the subject of Islamic Religious Education (PAI) at the school level. Most research has focused on the curriculum's conceptual and philosophical dimensions without evaluating its direct application in the field. To address this gap, the present study aims to (1) conduct an in-depth investigation into the implementation of the Merdeka Curriculum in the subject of PAI at SMA Negeri 1 and SMA Negeri 2 in Sibolga City; (2) examine aspects of instructional planning, implementation, and evaluation, as well as their impacts on the teaching and learning process; and (3) identify supporting and inhibiting factors in the implementation process, as a basis for offering recommendations for future development.

2. Methods

This study employed a qualitative descriptive method aimed at obtaining an in-depth understanding of the implementation of the Merdeka Curriculum in the subject of Islamic Religious Education. It is categorized as field research, wherein data were collected directly from sources at the research site to comprehend the contextual application of curriculum policy within educational institutions. The research design utilized was a multisite study, meaning that the research was conducted at more than one location with similar subject characteristics and institutional backgrounds (Hasiara, 2018). This study focused on two schools: SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga. The multisite approach was chosen to identify similarities and differences in the implementation of the Merdeka Curriculum in the Islamic Religious Education subject at both schools.

2.1. Sample/Participants

SMA Negeri 1 and SMA Negeri 2 Sibolga were selected as case study subjects based on several considerations. First, both schools hold an A accreditation status. Second, both institutions have implemented the Merdeka Curriculum. Third, by selecting these two schools, the findings are expected to be generalizable to the broader context of public senior high schools in Sibolga City. Participants in this study included the school principals, vice principals for curriculum affairs, teachers of Islamic Religious Education and Character Education, as well as students from both SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga.

2.2. Data Collection

Data collection methods employed in this study included observation, in-depth interviews, and document analysis. Participatory observation was conducted to obtain a direct and comprehensive picture of the curriculum implementation in the field, particularly within the context of Islamic Religious Education (Creswell, 2009). In-depth interviews were conducted with school principals, vice principals for curriculum, teachers, and students to explore how the Merdeka Curriculum was implemented at SMA Negeri 1 and SMA Negeri 2 Sibolga, including the supporting and inhibiting factors involved in its implementation. Document analysis included reviewing both short- and long-term curriculum implementation plans, teaching modules, instructional media, school vision and mission statements, and other documents related to the application of the Merdeka Curriculum at the two schools (Bowen, 2009).

This research was conducted through three interrelated main phases: planning, implementation, and evaluation. The procedures of this study are outlined in Table 1 below.

Table 1. Research Procedure

Planning Aspect	Implementation Aspect	Evaluation Aspect
School readiness analysis	Learning outcomes	Evaluation of learning process
Teacher training and development	Use of instructional modules	Evaluation of student learning outcomes
Lesson planning	Teaching methods	Evaluation of teacher and school performance
Provision of infrastructure	Utilization of learning media	Reflection and continuity
Socialization of Merdeka Curriculum	Differentiated learning	
	Formative assessment	
	Student engagement	

2.3. Data Analysis

Data analysis in this study was carried out through several systematic stages to obtain a comprehensive understanding of the implementation of the Merdeka Curriculum in the Islamic Religious Education subject at SMA Negeri 1 and SMA Negeri 2 Sibolga. These stages included data reduction, data presentation, preliminary findings, and findings verification. Data reduction was conducted by filtering relevant information obtained from observations, interviews, and documentation. The reduced data were then organized and systematically presented to facilitate preliminary conclusion drawing. The verification stage was carried out to validate the data and strengthen the resulting findings. The analysis was conducted on two levels: a single-site analysis for each school separately to understand the local characteristics of curriculum implementation, and a cross-site analysis comparing both schools to identify common patterns and differences in the implementation of the Merdeka Curriculum in Islamic Religious Education. This approach allowed the researcher to gain a comprehensive and holistic perspective on the dynamics of curriculum implementation within the context of religious education at the senior high school level in Sibolga.

2.4. Ethics

This study adhered to strict research ethics standards. Prior to conducting the research, formal permission was obtained from the schools, and informed consent was secured from all participants. Each participant was provided with comprehensive information regarding the research

objectives, methodologies employed, and their rights as participants, including the right to withdraw at any time without consequence. All data collected were kept confidential and used solely for the purpose of this study (Israel & Hay, 2006). Through a systematic and comprehensive methodological approach, this research aims to contribute significantly to the understanding and implementation of the Merdeka Curriculum in the Islamic Religious Education subject at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga.

3. Findings

The approaches to implementing the Merdeka Curriculum in the subject of Islamic Religious Education (PAI) at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga reveal differing strategies that reflect the institutional and pedagogical readiness of each school. These findings are presented systematically based on four key aspects: planning, implementation, evaluation, and supporting and inhibiting factors. Data presentation employs a multisite analytical table that displays site-specific findings alongside cross-site analyses to illustrate convergent and divergent patterns. The following subsections have been structured to maintain terminological consistency and include direct quotations from participants to strengthen the groundedness of the analysis.

The planning phase serves as the foundational stage in the implementation of the Merdeka Curriculum for the PAI subject. This process includes institutional readiness, teacher training and professional development, lesson planning, provision of facilities, and strategies for curriculum socialization among students. The following data present the results of the analysis from both schools, each with distinct institutional contexts, highlighting both shared approaches and significant differences based on their respective conditions. The comparative details of these findings are presented in Table 2, which outlines the planning phase of the Merdeka Curriculum implementation for the PAI subject at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga.

3.1. Independent Curriculum Planning for Islamic Religious Education Subject at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga

Table 2. Analysis of Independent Curriculum Planning Data

Aspect	Findings Site 1 (SMA Negeri 1 Sibolga)	Findings Site 2 (SMA Negeri 2 Sibolga)	Proposition	Cross-Site Analysis	Research Findings	Final Cross-Findings Proposition
School Readiness Analysis	Gradual implementation after considering HR and facilities readiness.	Immediately implemented Merdeka Berbagi with rapid readiness of teaching tools.	Schools implement the Independent Curriculum using different approaches, depending on their readiness.	SMA Negeri 1 is more cautious, while SMA Negeri 2 adapts quickly.	The gradual approach encounters fewer obstacles, but rapid implementation can also succeed with full support.	The success of Independent Curriculum implementation depends on readiness strategies that align with school conditions.
Teacher Training and Development	Comprehensive training with expert facilitators and internal discussions.	Teachers explore independently through Merdeka Mengajar and inter-	Teacher development strategies are influenced by the training approaches used.	SMA Negeri 1 is more structured, while SMA Negeri 2 is	Teachers with structured training are better prepared to adapt the	Effective teacher development requires a combination of structured training and

		school workshops.		more flexible.	Independent Curriculum.	independent exploration.
Learning Planning Preparation	Gradual planning with special training for Islamic Education (PAI) teachers.	Faced initial difficulties but succeeded through external assistance and evaluation.	Mentorship in lesson planning enhances curriculum implementation effectiveness.	Teachers who receive specific training are better prepared than those who must implement immediately.	Well-prepared teaching instruments improve learning effectiveness.	External mentoring and internal training are key to successful lesson planning.
Provision of Facilities and Infrastructure	Facilities are sufficient but still require technological development.	Better readiness in technological facilities with projectors and digital platform access.	Adequate facilities support the effectiveness of Independent Curriculum implementation.	SMA Negeri 2 is superior in the use of technology for learning.	Technological facilities play a significant role in the success of the Independent Curriculum.	Access to technology and infrastructure support accelerates adaptation to the Independent Curriculum.
Socialization of the Independent Curriculum to Students	Gradual socialization through direct meetings and teaching activities.	Socialization begins at student orientation with independent exploration.	Early socialization improves student understanding of the Independent Curriculum.	SMA Negeri 2 has a more systematic socialization strategy.	Structured socialization facilitates students' transition to the new curriculum.	Well-planned socialization helps students understand curriculum changes more quickly.

Cross-site analysis reveals a convergent pattern in the significance of infrastructure support and teacher training, while divergent patterns emerge in implementation strategies, particularly regarding the readiness of instructional tools and modes of curriculum socialization. A phased approach appears more anticipatory of potential challenges, whereas a rapid implementation strategy demands more dynamic adaptation. These findings underscore that planning strategies must be contextually tailored to each school's local setting.

The implementation phase reflects how the principles of the Merdeka Curriculum are translated into classroom learning activities. The observed aspects include learning outcomes, use of teaching modules, instructional methods and media, differentiated instruction, formative assessment, and student engagement. This narrative offers insight into the dynamics faced by Islamic Religious Education (PAI) teachers in two schools with differing contextual backgrounds. To understand how both schools practically implement these components, Table 3 presents the results of the implementation analysis of the Merdeka Curriculum in the PAI subject.

3.1 Implementation of the Merdeka Curriculum in Islamic Religious Education at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga

Table 3. Analysis of the Implementation of the Merdeka Curriculum

Aspect	Findings at Site 1 (SMA Negeri 1 Sibolga)	Findings at Site 2 (SMA Negeri 2 Sibolga)	Proposition	Cross-Site Analysis	Research Findings	Final Cross-Findings Proposition
Learning Outcomes (CP)	Teachers ensure the material aligns with the CP and employ case studies and discussions for concept application.	CP provides flexibility for teachers and students to explore materials based on students' development without rushing topics.	The Merdeka Curriculum's CP allows teachers and students to explore content more contextually.	SMA Negeri 1 focuses on the connection between concepts and real-life situations, while SMA Negeri 2 emphasizes time flexibility in learning.	The flexible approach enables deeper learning tailored to students' needs.	Effective implementation of CP relies on balancing structured learning with flexible material exploration.
Use of Teaching Modules	Teachers utilize teaching modules from the Merdeka Mengajar platform and modify modules from other schools to suit students.	Teachers use modules from the Merdeka Mengajar platform and adapt them through discussions with fellow teachers.	The use and adaptation of teaching modules enhance learning effectiveness.	Both schools employ modules from the same platform but adapt them using different strategies.	Modules tailored to classroom conditions can improve student comprehension.	Teaching modules should be adapted flexibly to accommodate students' needs.
Learning Methods	Still refers to 2013 Curriculum methods but is more flexible in instructional strategies.	More discussion-based methods are used compared to the demonstration-focused 2013 Curriculum.	The Merdeka Curriculum allows flexibility in selecting learning methods that meet student needs.	SMA Negeri 1 retains some old methods, while SMA Negeri 2 is more active in implementing discussions.	More active learning methods enhance student engagement in lessons.	Discussion-based learning is more effective in improving student comprehension and participation.
Use of Learning Media	Uses textbooks, slide presentations, and animated videos to clarify concepts.	Utilizes digital books, the Merdeka Mengajar platform, educational videos, and internet articles.	Varied learning media can improve student understanding.	SMA Negeri 2 relies more heavily on digital sources than SMA Negeri 1.	Integration of technology in learning increases material appeal to students.	Digital and interactive media enrich students' learning experiences and enhance learning effectiveness.
Differentiated Learning	Provides activity options based on learning	Offers material options according to students'	Differentiated learning helps students understand	Both schools implement differentiated learning but use different	Differentiated instruction can increase student motivation	Appropriate differentiation strategies support students'

	styles, such as articles for verbal learners and videos for visual learners.	interests and learning styles (visual, auditory, kinesthetic).	material according to their potential.	approaches in material selection.	and comprehension.	active engagement in learning.
Formative Assessment	Uses both formative and summative assessments, including oral questions, discussions, and daily assignments	Assessment is conducted throughout learning with a greater focus on process rather than final outcomes.	Formative assessment helps teachers provide early intervention for students' learning difficulties.	SMA Negeri 2 places more emphasis on process-based assessment than final outcomes.	Process-based assessment allows for gradual improvement in comprehension.	Ongoing formative assessments are more effective in monitoring student learning progress.
Student Engagement	Teachers strive to increase student activeness with engaging strategies such as using videos.	Students are fairly active; if the material is understood, the teacher moves on, otherwise provides repetition.	Engaging teaching strategies can enhance student participation in the learning process.	SMA Negeri 1 emphasizes media variety to boost engagement, while SMA Negeri 2 adjusts instruction based on student comprehension.	Student activeness can improve when teachers use strategies aligned with classroom conditions.	Responsive instructional approaches to student needs enhance learning effectiveness.

Both schools demonstrate convergence in the use of active learning approaches and formative assessment; however, differences are evident in how they utilize media and implement differentiation strategies. These differences are influenced by institutional characteristics and teacher capacity. Thus, the effectiveness of Merdeka Curriculum implementation depends on adaptive flexibility and sustained support.

Evaluation constitutes a critical phase in assessing the effectiveness of Merdeka Curriculum implementation, encompassing evaluation of the learning process, student learning outcomes, and teacher performance. Furthermore, reflection and continuous improvement serve as key indicators of commitment to educational quality. To illustrate the evaluation practices applied in both schools, as well as the differences shaped by their respective institutional structures and cultures, Table 4 presents a comparative analysis of the evaluation phase of the Merdeka Curriculum for the PAI subject.

3.2 Evaluation of the Merdeka Curriculum in the Islamic Religious Education Subject at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga

Table 4. Data Analysis on the Evaluation of the Merdeka Curriculum

Aspect	Findings at Site 1 (SMA Negeri 1 Sibolga)	Findings at Site 2 (SMA Negeri 2 Sibolga)	Proposition	Cross-Site Analysis	Research Findings	Final Cross-Findings Proposition
Evaluation of the Learning Process	Teachers implement differentiated instruction.	Teachers have adequately applied	The evaluation of the learning process	Both schools apply formative assessments	Effective evaluation of the learning	A combination of formative assessment and

	Formative assessments are used to monitor student progress. Routine classroom observations are conducted by the school.	differentiated learning and formative assessments . Classroom observations are regularly conducted to ensure implementation of the Merdeka Curriculum.	involves formative assessments and classroom observations to enhance the effectiveness of curriculum implementation.	and classroom observations, but the depth of implementation varies.	process requires consistent formative assessment and classroom observation .	classroom observation enhances the effectiveness of Merdeka Curriculum implementation.
Evaluation of Student Learning Outcomes	Evaluation covers three domains: diagnostic, formative, and summative. Assessment is not solely numeric but also evaluates critical thinking and the application of Islamic values.	Evaluation utilizes diagnostic, formative, and summative assessments . Emphasis is placed more on the learning process than on final outcomes. Teachers use projects and discussions to assess student engagement.	Learning outcome evaluation not only measures final results but also assesses the learning process and students' critical thinking skills.	SMA Negeri 2 emphasizes project-based evaluation and student engagement, while SMA Negeri 1 combines academic scores and character aspects.	Project- and discussion-based evaluations improve student engagement in learning.	Evaluation that assesses critical thinking and student engagement strengthens the effectiveness of the Merdeka Curriculum.
Evaluation of Teacher and School Performance	Teacher performance is evaluated periodically. The evaluation focuses on teaching readiness and the ability to adapt teaching methods. Teachers find the system supportive of professional development.	Teacher performance is evaluated regularly, focusing on teaching readiness and method adaptation. The school also evaluates resource management , including facilities and teacher training.	Teacher performance evaluation focuses on teaching readiness, adaptation of instructional methods, and school resource support.	Both schools conduct regular evaluations of teacher performance, but SMA Negeri 2 emphasizes overall resource management .	Effective teacher performance evaluation includes assessment of teaching readiness and sufficient facility support.	Comprehensive performance evaluation includes both teacher readiness and utilization of resources to support learning.
Reflection and Continuous Improvement	Routine reflection meetings are held to evaluate the implementation of the Merdeka Curriculum. Teachers express	Regular reflection meetings are conducted to adjust instructional strategies based on evaluation results. All school	Routine reflection is an essential part of evaluating and improving the implementation of the Merdeka Curriculum.	SMA Negeri 2 involves the entire school community in reflection, whereas SMA Negeri 1 focuses more on challenges	Routine reflection improves curriculum adaptation and the effectiveness of instructional strategies.	Involving all school stakeholders in reflection accelerates improvements in Merdeka Curriculum implementation.

challenges in implementation. The school provides solutions and support.	members participate in reflection and strategy improvement. The school provides concrete solutions based on teacher input.	faced by teachers.
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Evaluation in both schools indicates that formative assessment and routine reflection serve as key components. However, SMA Negeri 2 demonstrates a more integrative approach by involving the entire school community. This pattern suggests that collaborative evaluation has the potential to enhance implementation effectiveness. The evaluation process also reflects the interconnection between initial planning and its impact on student outcomes.

Understanding the factors that facilitate or hinder the implementation of the Merdeka Curriculum is crucial for supporting continuous improvement. The findings in this study are categorized into internal and external factors, and are examined in relation to the structural and cultural contexts of each school. To provide a comparative view of the dynamics of supporting and inhibiting factors in both schools, Table 5 presents the results of the analysis, detailing the contributions and challenges in the implementation of the Merdeka Curriculum in the PAI subject.

3.3 Supporting and Inhibiting Factors in the Implementation of the Merdeka Curriculum in the Islamic Religious Education (PAI) Subject

Table 5. Data Analysis of Supporting and Inhibiting Factors in the Implementation of the Merdeka Curriculum

Aspect	Findings at Site 1 (SMA Negeri 1 Sibolga)	Findings at Site 2 (SMA Negeri 2 Sibolga)	Proposition	Cross-Site Analysis	Research Findings	Final Cross-Findings Proposition
Supporting Factors	PAI teachers exhibit high initiative in understanding and applying the Merdeka Curriculum. Teachers collaborate through discussions and experience sharing. - The school provides supportive infrastructure Collaboration with MGMP PAI communities	70% of teachers are already competent in the Merdeka Curriculum. The school has adequate technological facilities. Students have the freedom to choose their learning pathways. School management actively supports curriculum implementation.	Teacher readiness, infrastructure, and school support play key roles in the successful implementation of the Merdeka Curriculum.	Both schools demonstrate good infrastructure readiness and teacher support, though they differ in student participation and management support levels.	The Merdeka Curriculum is more effectively implemented when supported by teacher readiness, sufficient facilities, and school and student support.	Successful implementation of the Merdeka Curriculum is determined by teacher readiness, school support, and active student participation.

	s and other schools. The school supports innovation in learning.					
Inhibiting Factors	Not all teachers understand the Merdeka Curriculum equally. Difficulties in designing project-based instructional tools. Limited training opportunities for teachers. Challenges in implementing P5 Projects. Low student participation in independent learning.	Some teachers still require assistance in understanding the Merdeka Curriculum. Students struggle to adapt to independent learning. Some teachers were skeptical about the curriculum at the early stages. Inadequate infrastructure in some classroom. Differences in parenting styles at home and school pose challenges.	Uneven teacher understanding and student readiness for independent learning are the primary obstacles in Merdeka Curriculum implementation.	The main barriers at both schools lie in teacher difficulties in understanding the curriculum and challenges in fostering student independence.	Effective implementation of the Merdeka Curriculum requires intensive mentoring for teachers and specific strategies to enhance student autonomy.	The effectiveness of the Merdeka Curriculum can be improved through enhanced teacher mentoring and approaches that assist students in adapting to independent learning.

Supporting factors in both schools include teacher readiness and infrastructural support, whereas inhibiting factors are related to disparities in teachers' understanding and challenges faced by students in independent learning. Differences were also observed in terms of school management support. While infrastructural preparedness emerges as a shared strength, variations in leadership influence the intensity of support provided. These findings underscore the importance of adopting a systemic approach to ensure the successful implementation of the curriculum.

These results enrich the empirical discourse on the implementation of the Merdeka Curriculum in the PAI subject, particularly within the context of secondary schools in non-metropolitan areas. Through a multisite approach and cross-site thematic analysis, this study addresses gaps in the literature concerning practical implementation and the contextual dynamics of adopting a new curriculum.

4. Discussion

The implementation of the Merdeka Curriculum in the subject of Islamic Religious Education (PAI) at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga demonstrates a diversity of approaches closely linked to the institutional readiness and cultural characteristics of each school. The gradual approach adopted by SMA Negeri 1 reflects a cautious stance with an emphasis on structured training, while SMA

Negeri 2 presents a more progressive response through rapid adaptation and independent exploration. This dynamic enriches our understanding of the importance of flexible implementation strategies rooted in local context.

These results affirm findings that emphasize successful implementation is heavily influenced by institutional preparedness, teacher training, and resource support (Daik et al., 2024; Nazar et al., 2024). However, this study expands upon that understanding by demonstrating that success is not only a matter of technical readiness but also of participatory leadership models and a collaborative culture. This is evident in SMA Negeri 2, where collective involvement in reflection and decision-making accelerated curriculum adaptation.

Moreover, teachers' approaches in lesson planning also display meaningful variation. SMA Negeri 1 emphasizes structure and character development through standardized teaching modules, while SMA Negeri 2 prioritizes flexibility and contextualization. These findings align with prior research, while further contributing the insight that a school's sociocultural context mediates the effectiveness of teaching module adaptation (Eppendi et al., 2024; Nengsih et al., 2024).

In terms of instructional methods and media, the contrasting approaches highlight the importance of technology integration in PAI learning. The more digitally oriented SMA Negeri 2 demonstrated increased student engagement. However, this study reveals that such success is also contingent on the teacher's readiness to manage varied media and pedagogical adaptation—not solely on the availability of technology (Siringoringo & Alfaridzi, 2024).

Both schools implemented differentiated instruction and formative assessment; however, SMA Negeri 2 was more responsive to student progress through process-based evaluation. These findings broaden the concept of assessment in the Merdeka Curriculum context and reinforce the value of real-time evaluation (Berutu et al., 2024). This study further adds that the effectiveness of formative assessment lies not only in its instruments but also in the teacher's capacity for reflective classroom interpretation.

Reflection and evaluation at SMA Negeri 2 were also more participatory, involving the entire school community. This indicates that curriculum transformation requires a systemic approach that goes beyond the classroom. In other words, transformational leadership becomes a key factor in creating an adaptive learning ecosystem (Marliyani et al., 2023).

This study offers a significant contribution to the literature on the implementation of character-based curricula in non-metropolitan areas. The findings illustrate that adapting the Merdeka Curriculum in the PAI subject is not merely a technical issue, but also a transformative one—shaping a new paradigm in the learning relationship between teachers and students, as well as between schools and their communities.

First, it is essential for schools to select implementation strategies that align with their organizational capacity and culture. Second, professional teacher development should go beyond formal training and include space for independent exploration and collective reflective support. Third, learning evaluation should not only be summative, but also process-based and contextual.

Subsequent studies may be directed to:

- a. Investigating how school principals' leadership styles mediate the effectiveness of teacher training in the Merdeka Curriculum context.
- b. Examining longitudinally the contribution of project-based PAI learning to students' internalization of religious values.
- c. Assessing the effectiveness of community-based reflective teacher training models in supporting curriculum adaptation.
- d. Exploring the implementation of the Merdeka Curriculum in the PAI subject in regions with more heterogeneous sociocultural characteristics.

This discussion illustrates that the implementation of the Merdeka Curriculum in PAI reflects not only policy adaptation but also necessitates a shift in perspective toward more contextual, reflective, and participatory religious education. This study serves as an empirical contribution that bridges the gap between curriculum concepts and classroom practice in the context of Islamic education at the secondary school level.

5. Conclusion

This study demonstrates that the implementation of the Merdeka Curriculum in the subjects of Islamic Religious Education (PAI) and Character Education at SMA Negeri 1 Sibolga and SMA Negeri 2 Sibolga proceeded through diverse approaches, reflecting institutional readiness, teacher pedagogical capacity, and the organizational culture of each school. The gradual approach adopted by SMA Negeri 1 indicated a cautious strategy through structured training and layered planning, whereas SMA Negeri 2 displayed an adaptive response through rapid integration, independent teacher exploration, and strong support from a participatory reflection system. This variation illustrates that the success of Merdeka Curriculum implementation is highly contingent upon contextually tailored strategies and transformational leadership that holistically supports the learning process.

This research has addressed its initial objectives—examining the implementation of the Merdeka Curriculum across three key aspects: planning, implementation, and evaluation—and identifying the supporting and inhibiting factors. In practice, the findings indicate that successful implementation is determined by a combination of teacher preparedness, availability of learning infrastructure, school management support, and active student engagement. Formative evaluation, periodic reflection, and openness to change emerge as critical indicators for sustaining the learning process. Notably, the participation of the entire school community in the evaluation process, as observed at SMA Negeri 2, has proven effective in strengthening curriculum adaptation and accelerating instructional improvement.

Practically, the results of this study offer guidance for schools in designing more adaptive Merdeka Curriculum implementation strategies. First, the choice of implementation approach should consider the school's internal readiness and organizational culture. Second, teacher capacity development should extend beyond formal training to include spaces for collective reflection and continuous pedagogical exploration. Third, evaluation should not rely solely on summative measures but should also include process-based assessments that are responsive to students' needs. Additionally, it is important to strengthen participatory leadership as a driver of collaborative and innovative school culture.

However, this study has limitations in terms of its geographic and socio-cultural context, which is relatively homogeneous—non-metropolitan areas with limited diversity. Furthermore, due to its qualitative nature and limited timeframe, the study does not fully capture the long-term dynamics of curriculum transformation.

Therefore, further research is needed with broader and more in-depth scopes. Potential directions include: (1) exploring how school principals' leadership styles influence the effectiveness of teacher training within the Merdeka Curriculum framework; (2) tracing the longitudinal impact of project-based PAI and Character Education on students' character formation and internalization of religious values; (3) assessing the effectiveness of community-based reflective teacher training models; and (4) examining the implementation of the Merdeka Curriculum in regions with more heterogeneous socio-cultural backgrounds.

In conclusion, this study provides both conceptual and empirical contributions to the understanding of character-based curriculum implementation, particularly in subjects that emphasize values and religiosity, such as PAI and Character Education. Beyond being a policy shift, the Merdeka

Curriculum in this context represents a transformative process that demands a paradigm shift in the relationships between teachers, students, and educational institutions as a whole.

Declarations

Author contribution statement

Yuri Indri Yani contributed as the lead and corresponding author, conducted interviews with the principal researcher, assisted in in-depth interviews and literature review, and prepared the comprehensive draft of the article. Wahyudin Nur Nasution contributed by analyzing field data, while Siti Halimah provided additional input on analysis and methodology.

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Data availability statement

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Declaration of Interest's statement

The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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