



The Integration of Fiqh and Science through Inquiry-Based Learning in the *Merdeka Belajar* Curriculum

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Abstract: This study examines the integration of Fiqh and science through inquiry-based learning within the Merdeka Belajar curriculum at MTsN 1 Padang Lawas Regency, North Sumatra, Indonesia. A qualitative approach was employed using interviews, classroom observations, and document analysis to explore the implementation, benefits, and challenges of inquiry-based learning in Fiqh instruction. The findings reveal that inquiry-based learning is implemented through contextual problem stimulation, data collection from the Qur'an, Hadith, and other Islamic sources, collaborative discussions, presentations, and reflection. This approach transforms Fiqh instruction into a student-centered learning process, encouraging learners to construct knowledge through questioning, investigation, and critical reasoning. Integrating scientific perspectives enables students to connect Islamic legal principles with real-life issues, including health, hygiene, environmental sustainability, and social responsibility. As a result, students demonstrate improved critical thinking, conceptual understanding, learning autonomy, and collaboration. However, implementation is constrained by limited instructional time, varying student readiness, insufficient inquiry-based teaching materials, and restricted learning resources. Despite these challenges, inquiry-based learning effectively supports the objectives of the Merdeka Belajar curriculum by promoting independent learning, critical reasoning, and character development. Strengthening instructional design, teacher competence, and learning resources is essential for sustainable implementation in Islamic education.

Keywords: Fiqh Education; Inquiry-Based Learning; Merdeka Belajar Curriculum; Science Integration.

Introduction

Merdeka Belajar (Freedom to Learn) is introduced as a strategic initiative to respond to the evolving demands of education systems in the era of the Industrial Revolution 4.0, characterized by the rapid advancement of digital technologies. Contemporary learners are increasingly engaged in visual, interactive, and technology-driven environments, which require more flexible, adaptive, and student-centered approaches to teaching and learning (Daga, 2021; Darling-Hammond et al., 2020). Consequently, educational practices are expected to shift from traditional teacher-centered instruction toward learning environments that empower students to actively

construct knowledge and develop essential 21st-century competencies, including critical thinking, creativity, and collaboration (Voogt & Pareja Roblin, 2012). In this context, inquiry-based learning becomes a relevant pedagogical approach, particularly when integrated with scientific perspectives that promote exploration, investigation, and evidence-based reasoning as part of meaningful learning processes.

Education plays a crucial role in developing high-quality human resources who are not only intellectually capable but also possess strong character and the ability to adapt to societal changes. Within Islamic education, particularly in Fiqh instruction, learning extends beyond cognitive understanding to encompass affective and psychomotor dimensions that emphasize the application

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of Islamic teachings in everyday life (Sahin, 2018). This highlights the importance of Fiqh as a subject that shapes students' moral awareness and social behavior. Therefore, integrating scientific approaches into Fiqh learning through inquiry-based methods becomes essential to create a more contextual, reflective, and meaningful learning experience. Such integration enables students to connect religious principles with empirical understanding, thereby aligning Fiqh instruction with the principles of the Merdeka Belajar Curriculum, which emphasizes flexibility, student autonomy, and active engagement in the learning process.

The Merdeka Curriculum provides greater autonomy for teachers to select instructional models and strategies that align with the needs and characteristics of their students. This flexibility encourages the development of innovative, engaging, and meaningful learning experiences (Priestley et al., 2015). One approach that closely aligns with these principles is inquiry-based learning, which promotes active knowledge construction through processes such as questioning, investigation, and evidence-based reasoning, thereby enhancing students' critical thinking skills (Natalia et al., 2019; Pedaste et al., 2015). Within the context of this study, inquiry-based learning is further strengthened by integrating scientific perspectives into Fiqh instruction, allowing students to explore religious concepts through empirical observation and logical analysis. This integration supports a more contextual and meaningful understanding of Fiqh, in line with the goals of the Merdeka Belajar Curriculum.

Inquiry-based learning consists of structured activities designed to develop analytical and critical thinking skills as students seek solutions to real-world problems. The process typically involves dynamic interactions between teachers and students through questioning, discussion, and exploration of various sources of information. Often associated with the heuristic approach—derived from the Greek term *heuriskein*, meaning “to discover”—this model emphasizes student-centered knowledge construction (Ayuniar et al., 2023; Lazonder & Harmsen, 2016). However, in many madrasahs, Fiqh instruction remains dominated by conventional, teacher-centered methods, which limit student engagement and critical participation. As a result, students frequently exhibit low analytical ability and limited problem-solving skills when attempting to understand Fiqh concepts in real-life contexts, particularly when these concepts are not connected to scientific explanations (Hattie, 2012; Schunk, 2020).

On the other hand, low learning motivation among students remains a significant challenge in Fiqh instruction. Many students demonstrate limited interest

and enthusiasm due to monotonous learning processes that provide minimal opportunities for exploration and active engagement. Recent studies suggest that inquiry-based learning has strong potential to enhance students' motivation, engagement, and learning outcomes through processes of investigation and independent discovery (Forsblom et al., 2023). Furthermore, inquiry-based approaches are proven to promote critical thinking skills and deepen conceptual understanding, particularly when learning is connected to real-world contexts (Lazonder & Harmsen, 2016). In the context of this study, the integration of scientific perspectives into inquiry-based Fiqh learning is considered essential to make learning more relevant, contextual, and meaningful, thereby addressing students' lack of motivation and engagement.

This study was conducted at Madrasah Tsanawiyah Negeri 1 in Padang Lawas Regency, North Sumatra, where similar issues have been identified. Despite the implementation of the Merdeka Belajar Curriculum, which emphasizes student-centered learning, Fiqh instruction remains largely dominated by teacher-centered approaches. This results in low student participation, limited interaction, and suboptimal learning outcomes. Such conditions indicate a clear gap between the intended goals of the curriculum and actual classroom practices. Therefore, this study aims to analyze the current implementation of inquiry-based learning, develop a contextually appropriate model that integrates Fiqh and scientific approaches within the Merdeka Belajar framework, and identify the supporting and inhibiting factors influencing its application. The significance of this research lies in its potential to transform Fiqh learning into a more active, inquiry-driven, and scientifically integrated process that not only enhances students' understanding of Islamic law but also strengthens their critical thinking and problem-solving skills in real-life contexts.

The Merdeka Belajar (Freedom to Learn) policy represents a significant educational reform introduced by the Indonesian Ministry of Education, Culture, Research, and Technology to enhance the effectiveness and efficiency of teaching and learning processes across schools. This policy aims to transform conventional instructional practices into more flexible and student-centered approaches that accommodate diverse learning needs. Its positive impact extends not only to teachers and students but also to parents, as it promotes a more holistic and inclusive educational environment (Development, 2021). By prioritizing students' interests and talents, Merdeka Belajar fosters creativity, engagement, and meaningful learning experiences, which are essential components of 21st-century education (Darling-Hammond et al., 2020; Voogt & Pareja Roblin, 2012). Within this framework, the

integration of inquiry-based learning and scientific approaches becomes increasingly relevant, as it enables students to actively construct knowledge through exploration, investigation, and evidence-based reasoning.

Furthermore, the Merdeka Belajar Curriculum addresses longstanding challenges within traditional education systems, particularly the overemphasis on cognitive achievement as the sole indicator of student success. In contrast, this curriculum promotes a more balanced assessment approach that integrates cognitive, affective, and psychomotor domains, thereby supporting the development of well-rounded individuals (Darling-Hammond et al., 2020). In the context of Fiqh education, this shift is particularly important, as learning is expected not only to develop conceptual understanding but also to shape students' attitudes and practices in accordance with Islamic teachings. Therefore, integrating scientific perspectives into Fiqh instruction through inquiry-based learning provides an opportunity to connect religious concepts with empirical understanding, making learning more contextual, reflective, and meaningful.

Unlike previous studies that predominantly focus on inquiry-based learning in general educational contexts, this study adopts a context-specific approach by integrating inquiry-based learning with scientific perspectives within the pedagogical framework of the Merdeka Belajar Curriculum in Fiqh education. It not only examines existing instructional practices but also develops a learning model tailored to the unique characteristics of Fiqh and the madrasah environment. In addition, this study explores contextual factors affecting implementation, including teacher readiness, student characteristics, and institutional conditions. By addressing these aspects, the study contributes to bridging the gap between theory and practice and offers practical implications for developing more effective, student-centered, and scientifically integrated learning models in Islamic education.

Method

Research Design

This study employed a qualitative descriptive approach to explore the integration of Fiqh and scientific perspectives through inquiry-based learning within the Merdeka Belajar Curriculum. This design was selected to obtain an in-depth understanding of classroom practices, teacher experiences, and contextual challenges in implementing inquiry-based learning. A qualitative descriptive approach enables researchers to interpret phenomena naturally based on participants' perspectives and real-life contexts (Creswell & Creswell, 2018; Ravitch & Carl, 2021; Tracy, 2020).

Research Site and Participants

The study was conducted at Madrasah Tsanawiyah Negeri 1 in Padang Lawas Regency, North Sumatra, Indonesia. The participants consisted of five Fiqh teachers who were actively involved in teaching and implementing the Merdeka Belajar Curriculum. A purposive sampling technique was used to select participants who met specific criteria, including teaching experience and active involvement in instructional practices (Etikan, 2016). Such sampling is appropriate in qualitative research to obtain rich and relevant information (Hennink et al., 2020).

Data Collection

Data was collected through observation, semi-structured interviews, and documentation. Classroom observations were conducted to examine the implementation of inquiry-based learning, student engagement, and the integration of scientific approaches in Fiqh instruction. Semi-structured interviews were used to explore teachers' perspectives, experiences, and challenges in applying inquiry-based learning within the Merdeka Belajar framework. Documentation analysis focused on lesson plans, teaching materials, and curriculum documents. The research instruments included observation guidelines, interview protocols, and documentation checklists to ensure systematic data collection (Fraenkel et al., 2019; Merriam & Tisdell, 2016).

Data Analysis

Data analysis was conducted using an interactive model consisting of data reduction, data display, and conclusion drawing (Miles et al., 2019). In addition, thematic analysis was employed to identify patterns and themes related to the integration of inquiry-based learning and scientific perspectives in Fiqh instruction (Braun & Clarke, 2021). This approach allows for a systematic interpretation of qualitative data.

Trustworthiness of the Study

To ensure the rigor of the research, this study applied trustworthiness criteria, including credibility, transferability, dependability, and confirmability. Credibility was established through data triangulation by comparing findings from observations, interviews, and documentation. Transferability was ensured by providing detailed contextual descriptions, while dependability and confirmability were maintained through audit trails and consistent analytical procedures (Lincoln et al., 2018; Nowell et al., 2017).

Result and Discussion

1. *Inquiry-Based and Science-Integrated Fiqh Learning in the Merdeka Belajar Curriculum*

Based on the results of interviews conducted at Madrasah Tsanawiyah Negeri 1 Padang Lawas, it can be concluded that inquiry-based learning, integrated with scientific approaches, represents an effective and relevant instructional model within the implementation of the Merdeka Belajar Curriculum, particularly in Fiqh education. This model emphasizes the active role of students in constructing knowledge through processes such as questioning, investigating, analyzing, and drawing conclusions independently. In this context, the integration of scientific perspectives strengthens students' understanding by encouraging them to explore Fiqh concepts not only from normative religious sources but also through logical reasoning and contextual analysis.

The implementation of inquiry-based and science-integrated learning at MTsN 1 Padang Lawas is carried out through several stages, including the provision of contextual religious case studies as learning stimuli, problem identification, and data collection from primary sources such as the Qur'an, Hadith, and classical Islamic texts. In addition, students are guided to analyze information critically and relate it to real-life situations, which reflects the integration of scientific thinking within Fiqh learning. Teachers reported that this approach has a positive impact on student engagement and conceptual understanding. Students become more active, develop analytical thinking skills, and are better able to connect Fiqh materials with everyday life contexts, which is consistent with previous studies showing that inquiry-based learning enhances student engagement and critical thinking (Lazonder & Harmsen, 2016; Pedaste et al., 2015). This finding also suggests that the effectiveness of inquiry-based learning is highly dependent on teachers' pedagogical readiness and the availability of sufficient instructional time, which may limit its optimal implementation in real classroom settings.

However, despite its advantages, the implementation of this model also faces several challenges. One of the main constraints identified is limited instructional time, which affects the depth of inquiry processes and classroom discussions. Nevertheless, the integration of inquiry-based learning and scientific approaches in Fiqh instruction remains a promising strategy to create more meaningful, contextual, and student-centered learning experiences in line with the principles of the Merdeka Belajar Curriculum.

The implementation of inquiry-based learning at Madrasah Tsanawiyah Negeri 1 Padang Lawas is carried

out through several structured stages, including the provision of contextual religious case studies as learning stimuli, problem identification, data collection from primary sources such as the Qur'an, Hadith, and classical Fiqh texts, group discussions, presentation of findings, and reflection followed by teacher reinforcement. These stages reflect a systematic inquiry process that encourages students to actively construct knowledge through investigation and reasoning. This strategy fosters students' critical thinking, creativity, and sense of responsibility toward their own learning outcomes, aligning with recent findings that inquiry-based learning enhances student engagement and higher-order thinking skills (Forsblom et al., 2023).

Teachers acknowledged that this model has a positive impact on students' engagement and conceptual understanding in Fiqh learning. Students become more active, develop analytical thinking skills, and can connect Fiqh concepts with real-life situations. However, despite these benefits, several challenges remain. These include limited instructional time, variations in students' readiness levels, and the lack of adequate learning resources to support inquiry-based activities. This finding indicates that the effectiveness of inquiry-based learning is not solely determined by the model itself but is also influenced by contextual factors such as teacher preparedness and institutional support.

Overall, the inquiry-based learning model is highly consistent with the direction of the Merdeka Belajar Curriculum and contributes to the development of the Profil Pelajar Pancasila, particularly in fostering independence, critical reasoning, collaboration, and strong religious values. Therefore, this model should be sustained and further developed as an innovative and transformative instructional strategy in Fiqh education within madrasah contexts.

2. *The Inquiry-Based Learning Process in Connecting Fiqh Concepts with Scientific Understanding in the Merdeka Belajar Curriculum*

The Fiqh teacher in this context functions not as the primary source of knowledge, but as a facilitator who guides students through inquiry-based processes of concept discovery. Within the Merdeka Belajar framework, this approach aligns with constructivist learning theory, in which learners actively construct knowledge through exploration, questioning, and meaning making. Students are encouraged to investigate Fiqh concepts while simultaneously engaging in scientific reasoning, enabling an interdisciplinary integration of Fiqh and science grounded in real-life contexts. This pedagogical shift promotes deeper conceptual understanding by connecting normative Islamic legal principles with

empirical and rational perspectives derived from scientific inquiry.

Furthermore, the Merdeka Belajar philosophy emphasizes learner autonomy, allowing students to learn according to their individual styles, interests, and contextual experiences. Such flexibility strengthens inquiry-based learning by fostering critical thinking, independent learning, and contextual interpretation of knowledge. Consequently, the integration of Fiqh and science becomes not merely content-based, but epistemological, positioning students as active knowledge constructors who bridge religious understanding with scientific perspectives in a coherent learning process.

The implementation of inquiry-based learning at MTsN 1 Padang Lawas Regency is structured through systematic stages, including contextual stimulus in the form of religious case studies, problem identification, data collection from primary Islamic sources (Al-Qur'an, Hadith, and classical Fiqh literature), collaborative discussion, presentation of findings, and reflective reinforcement by the teacher. This instructional sequence positions students as active knowledge constructors, fostering critical thinking, creativity, and responsibility for their learning outcomes within the framework of the Merdeka Belajar curriculum.

In relation to the integration of Fiqh and science, the inquiry process enables students to engage in analytical and evidence-based reasoning that parallels scientific inquiry. Students are encouraged to investigate Fiqh issues through questioning, examining textual and contextual evidence, and drawing logical conclusions, thereby bridging normative Islamic legal reasoning with scientific modes of thinking. This interdisciplinary orientation strengthens conceptual understanding by linking religious knowledge with rational and empirical approaches to real-life phenomena.

The teacher confirms that this model significantly enhances student engagement and comprehension in Fiqh learning. Students become more active, analytically oriented, and capable of contextualizing Fiqh concepts within everyday experiences. Furthermore, the integration of scientific reasoning within inquiry-based learning deepens students' understanding of Islamic rulings as dynamic, contextual, and intellectually grounded.

However, several challenges remain, including limited instructional time, heterogeneous student readiness, and insufficient learning resources. Despite these constraints, the model aligns strongly with the principles of the Merdeka Belajar curriculum and supports the development of the Profil Pelajar Pancasila, particularly in fostering independent learning, critical reasoning, collaboration, and spiritual integrity.

Overall, the findings indicate that inquiry-based learning serves as an effective pedagogical approach for integrating Fiqh and science within the Merdeka Belajar curriculum. It promotes a transformative learning process in which students actively construct knowledge through investigation, reflection, and contextual analysis of Islamic legal concepts grounded in both textual sources and scientific reasoning.

3. *Innovative Inquiry-Based Learning for Integrating Fiqh and Science in the Merdeka Belajar Curriculum*

The implementation of learning innovation within the Merdeka Belajar curriculum in Fiqh instruction at MTsN 1 Padang Lawas Regency, North Sumatra, has brought significant positive changes for both students and teachers. This transformation is reflected in increased learning effectiveness, where students demonstrate higher engagement and teachers experience greater flexibility in designing and delivering instruction. The shift toward innovative pedagogical practices aligns with the broader objective of integrating Fiqh and science through inquiry-based and contextual learning approaches, enabling students to construct knowledge actively and meaningfully.

In practice, the madrasah has adopted a variety of instructional models as part of its learning innovation, including cooperative learning, problem-based learning, direct instruction, and inquiry-based learning. These approaches are applied flexibly depending on learning objectives and classroom conditions. Although traditional methods are still occasionally used during the transitional phase from the 2013 Curriculum to the Merdeka Belajar curriculum, the overall direction reflects a gradual but consistent shift toward student-centered and inquiry-oriented learning. This transition is strongly supported by the school leadership, which maintains an optimistic and proactive stance in ensuring the successful implementation of curriculum reform.

The implementation process begins with a planning stage, where teachers participate in training programs and professional development activities aimed at strengthening their understanding of the *Merdeka Belajar* framework. Fiqh teachers are actively involved in these capacity-building initiatives under the supervision of the school principal and curriculum coordinators, with a particular emphasis on integrating scientific perspectives into Fiqh instruction. Subsequently, teachers develop instructional tools aligned with curriculum standards by designing teaching modules that not only emphasize learning objectives, student engagement, and contextual relevance, but also incorporate the integration of Fiqh and science. This integration enables students to understand Islamic legal concepts alongside scientific principles, especially in topics related to hygiene,

environmental awareness, health, and natural phenomena.

Findings from interviews with Fiqh teachers indicate that the *Merdeka Belajar* curriculum has stimulated substantial pedagogical innovation, not only in instructional methods but also in planning, implementation, and assessment practices. A key transformation is the shift from teacher-centered to student-centered learning, where students are encouraged to actively question, explore, and interpret Islamic legal concepts through contextual, reflective, and scientific approaches. Within this framework, the integration of Fiqh and science becomes more explicit, as students engage in inquiry processes involving investigation, logical reasoning, and evidence-based understanding, bridging religious knowledge with scientific inquiry.

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To support this transformation, Fiqh teachers at MTsN 1 have developed various innovative strategies, such as project-based learning, inquiry-based learning, and case-based discussions that explicitly incorporate scientific dimensions. For instance, students may explore the concept of wudu in relation to hygiene and health science or analyze environmental ethics in Islamic law alongside ecological principles. These approaches facilitate deeper conceptual understanding

by linking Fiqh principles with real-life contexts and scientific perspectives. As a result, learning becomes more interdisciplinary, meaningful, and aligned with the goals of the *Merdeka Belajar* curriculum in fostering critical thinking, collaboration, and holistic student development.

The integration of Fiqh and science can be effectively demonstrated through topics related to biology and health. For instance, in learning wudu (ablution), students not only study its legal requirements but also examine its role in maintaining hygiene from a biological perspective, such as reducing microorganisms and preventing disease transmission. Similarly, the concept of fasting (sawm) can be linked to human physiology, where students explore metabolic processes, energy regulation, and the health benefits associated with controlled fasting. In addition, the physical movements in salat (prayer) can be analyzed in relation to body mechanics, muscle flexibility, and blood circulation, highlighting the connection between religious practices and physical well-being.

From an environmental science perspective, the concept of *thaharah* (purification) provides a strong foundation for integrating Fiqh with sustainability principles. Students can investigate how Islamic teachings emphasize cleanliness, proper sanitation, and responsible water usage, which align with modern environmental conservation practices. This integration can be further enriched by discussing real-life issues such as water scarcity and environmental hygiene, allowing students to connect religious obligations with global ecological challenges. In this way, Fiqh learning becomes not only normative but also relevant to contemporary environmental concerns.

The integration of Fiqh and science can be expanded through interdisciplinary exploration, such as linking the determination of prayer times with basic astronomical concepts, including the position of the sun and the Earth's rotation. Through such inquiry-based activities, students engage in observation, reasoning, and evidence-based understanding that reflect scientific inquiry processes. Overall, this integration fosters a more meaningful and holistic learning experience, where students can connect Islamic legal principles with scientific knowledge, thereby enhancing critical thinking, contextual awareness, and interdisciplinary understanding.

Advantages and Challenges of Inquiry-Based Learning for Fiqh and Science Integration in the Merdeka Belajar Curriculum

Based on interviews with Fiqh teachers integrating science at MTsN 1 Padang Lawas Regency, it can be concluded that inquiry-based learning offers significant advantages in supporting the implementation of the

Merdeka Belajar curriculum, particularly in fostering the integration of Fiqh and science. This model enhances student engagement and autonomy, as learners actively seek information, formulate questions, and construct their own understanding through investigation. It also strengthens critical and analytical thinking, as students are trained to evaluate Islamic legal sources, compare scholarly opinions, and develop reasoned arguments. Furthermore, inquiry-based learning makes Fiqh instruction more contextual and applicable, enabling students to connect Islamic legal concepts with real-life situations and scientific perspectives. Beyond cognitive development, this approach contributes to character building by promoting honesty in inquiry, collaboration in discussion, and spiritual awareness, in line with the *Profil Pelajar Pancasila*.

Despite these strengths, several limitations remain in the implementation of inquiry-based learning within Fiqh–science integration. One of the primary challenges is the time constraint, as inquiry processes—such as investigation, discussion, and reflection—require longer instructional periods than conventional methods. In addition, disparities in students' literacy levels and independent learning skills affect the effectiveness of the approach, with some students struggling to engage fully in inquiry activities, particularly when dealing with Arabic-based religious texts and scientific reasoning. This indicates that the success of inquiry-based learning is highly dependent on students' readiness and prior knowledge.

Moreover, the implementation of this model demands a high level of teacher competence in designing interdisciplinary and inquiry-oriented learning experiences that integrate Fiqh and scientific perspectives. Not all teachers possess sufficient experience or training in this area, making continuous professional development essential. Another significant constraint is the limited availability of learning resources and infrastructure, such as access to relevant Fiqh literature, scientific references, digital libraries, and stable internet connectivity. These limitations hinder the optimal implementation of inquiry-based learning and highlight the need for institutional support to sustain innovative and integrative pedagogical practices.

Discussion

The findings of this study demonstrate that the implementation of inquiry-based learning in Fiqh instruction at MTsN 1 Padang Lawas aligns closely with contemporary constructivist learning theory, which positions students as active agents in constructing knowledge through experience, interaction, and reflection. In this context, the integration of Fiqh and science is not merely content-based but epistemological, as students engage in processes of questioning,

investigating, and reasoning that mirror scientific inquiry. This is consistent with recent studies emphasizing that inquiry-based learning promotes active engagement, critical thinking, and deeper conceptual understanding by shifting learning from passive reception to active exploration (Amsari, 2019; Morris, 2025). Thus, the integration of Islamic legal knowledge with scientific reasoning enables students to interpret Fiqh in a more contextual, rational, and meaningful way.

Furthermore, the results confirm that inquiry-based learning supports the development of higher-order thinking skills, particularly analytical and evaluative reasoning. Students are not only required to understand Islamic legal rulings but also to examine evidence, compare scholarly perspectives, and construct arguments grounded in both textual sources and empirical reasoning. This finding is in line with recent systematic reviews indicating that inquiry-based approaches significantly enhance students' critical thinking, problem-solving abilities, and collaborative learning skills (Ramaila, 2024). In addition, the integration of Fiqh and science strengthens interdisciplinary learning, allowing students to connect religious principles with scientific concepts such as hygiene, health, and environmental sustainability, thereby making learning more relevant to real-life contexts.

However, this study also reveals several challenges that affect the effectiveness of inquiry-based learning. One key issue is the need for adequate scaffolding and structured guidance. Without proper support, students may struggle to connect inquiry activities with conceptual understanding, leading to superficial learning outcomes. This is supported by recent research highlighting that inquiry-based learning requires balanced implementation, including teacher guidance, reflective activities, and structured inquiry phases to ensure meaningful learning (Morris, 2025). Disparities in students' literacy skills and prior knowledge, particularly in understanding Arabic religious texts and scientific concepts, pose significant barriers to effective participation in inquiry processes.

Another critical challenge lies in teacher readiness and resource availability. The successful integration of Fiqh and science through inquiry-based learning demands high pedagogical competence, interdisciplinary understanding, and the ability to design contextual and inquiry-oriented learning environments. As emphasized in constructivist theory, teachers play a crucial role as facilitators who guide students' cognitive and reflective processes (Erawati & Adnyana, 2024; Syahapala et al., 2025). However, limited access to instructional resources, such as inquiry-based modules, digital learning materials, and contextual

teaching media, constrain the optimal implementation of this approach.

The findings suggest that inquiry-based learning serves as a transformative pedagogical approach in integrating Fiqh and science within the *Merdeka Belajar* curriculum. It not only enhances students' cognitive and analytical abilities but also promotes meaningful, contextual, and interdisciplinary learning experiences. Nevertheless, its effectiveness depends on the availability of structured learning designs, professional teacher development, and adequate learning resources. Therefore, future efforts should focus on strengthening instructional frameworks, developing inquiry-based teaching materials, and enhancing teacher capacity to ensure sustainable and effective implementation of Fiqh-science integration in Islamic education.

In addition, the integration of inquiry-based learning within Fiqh and science reflects a broader shift toward constructivist and interdisciplinary paradigms in contemporary Islamic education. Inquiry-based approaches emphasize active student engagement in questioning, investigating, and constructing knowledge, which aligns with the development of learner autonomy and self-determined learning in Islamic educational contexts (Yulistiawati et al., 2025). This is further supported by international research indicating that inquiry-based science instruction enhances conceptual understanding and promotes deeper engagement through structured inquiry cycles and guided exploration (Lazonder & Harmsen, 2016; Pedaste et al., 2015). Such integration enables students to bridge normative Islamic legal reasoning with empirical and scientific perspectives, thereby positioning Fiqh learning within a more dynamic and contextual epistemological framework.

Moreover, recent empirical studies in Islamic education contexts confirm that inquiry-based learning significantly improves students' critical thinking, engagement, and learning outcomes. For instance, inquiry-based instruction has been shown to enhance student autonomy, participation, and analytical reasoning in Islamic secondary education (Zaironi, 2026). Similarly, the development of inquiry learning models in Islamic Religious Education demonstrates that such approaches effectively transform traditionally teacher-centered classrooms into student-centered environments that foster higher-order thinking skills (Nabillah et al., 2025).

In addition, the integration of scientific inquiry with Islamic values has been found to strengthen students' critical thinking and ability to relate religious teachings to scientific phenomena (Fahyuni & Anggraini, 2025). These findings are consistent with international studies emphasizing that inquiry-based learning supports the development of 21st-century

skills, including problem-solving, collaboration, and evidence-based reasoning (Minner et al., 2010; Prince & Felder, 2006).

However, the effectiveness of this integrative approach is highly dependent on the availability of structured instructional design and adequate pedagogical support. Research highlights that the development of inquiry-based learning tools, such as structured worksheets and guided modules, is essential to facilitate meaningful student engagement and conceptual understanding (Nofiarti et al., 2025). Without appropriate scaffolding, students may struggle to connect inquiry activities with deeper conceptual learning, particularly in complex subjects such as Fiqh that require both textual interpretation and analytical reasoning. Furthermore, recent studies emphasize that teacher competence in designing inquiry-oriented and interdisciplinary learning environments plays a critical role in the success of such approaches (Rasyidi et al., 2025). Therefore, strengthening teacher professional development, instructional design, and access to learning resources is crucial to optimizing the integration of Fiqh and science within the *Merdeka Belajar* curriculum.

Conclusion

This study concludes that the implementation of inquiry-based learning within the *Merdeka Belajar* curriculum at MTsN 1 Padang Lawas Regency has significantly contributed to the integration of Fiqh and science in Islamic education. The inquiry-based approach transforms Fiqh learning from a predominantly normative and teacher-centered process into a more student-centered, contextual, and interdisciplinary experience. Through structured inquiry stages, students actively construct knowledge by engaging in questioning, investigation, and evidence-based reasoning, enabling them to connect Islamic legal principles with scientific perspectives in meaningful ways.

The findings further indicate that this integrative approach enhances students' critical thinking, learning autonomy, and conceptual understanding. By linking Fiqh concepts with real-life phenomena and scientific knowledge, learning becomes more relevant and applicable to students' daily lives. In addition, the approach supports the development of key competencies promoted by the *Merdeka Belajar* curriculum, including independence, collaboration, and reflective thinking, while also strengthening students' spiritual awareness and ethical values.

However, the effectiveness of inquiry-based learning in integrating Fiqh and science is influenced by

several factors, including limited instructional time, variations in student readiness, teacher competence, and the availability of appropriate learning resources. These challenges highlight the need for continuous professional development, the development of inquiry-based instructional materials, and improved access to learning facilities. Therefore, future efforts should focus on strengthening pedagogical design and institutional support to ensure the sustainable and effective implementation of inquiry-based learning in Islamic education. Overall, this study affirms that inquiry-based learning serves as a transformative and relevant approach for integrating Fiqh and science within the *Merdeka Belajar* curriculum.

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Conceptualization, M.J.N. and R.; methodology, M.J.N.; software, M.J.N.; validation, M.J.N., R., and A.; formal analysis, M.J.N.; investigation, M.J.N.; resources, R. and A.; data curation, M.J.N.; writing—original draft preparation, M.J.N.; writing—review and editing, R. and A. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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