

Revitalization of Ilmu Falak within the Intellectual Tradition of Traditional Pesantren: A Case Study at Dayah Mudi Mesra Samalanga

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Abstract

Islamic astronomy (ilmu falak) holds a strategic position within the corpus of Islamic sciences, supporting the implementation of religious practices such as determining the beginning of the Hijri months. Historically, this field was one of the most prominent branches of knowledge in the Islamic world. However, its role has gradually diminished, particularly in traditional pesantren (Islamic boarding schools), which tend to prioritize Fiqh and other branches of Islamic studies. The lack of experts, limited facilities, and the dichotomy between hisab (astronomical calculations) and rukyat (moon sighting) have further exacerbated this situation, threatening the existence of Islamic astronomy in traditional pesantren, including in Aceh. This study aims to analyze the content of Islamic astronomy taught at Dayah MUDI Mesra Samalanga, Bireun, Aceh, and to explore strategies for its development to reintegrate it as an essential part of the pesantren curriculum. Using an empirical descriptive approach with qualitative methods, this research collected data through observation, in-depth interviews, and document studies. The findings reveal that Islamic astronomy has been reintroduced into the curriculum of Dayah MUDI Mesra as an innovative step toward revitalizing the heritage of Islamic sciences. The strategies designed include enhancing the capacity of educators, providing necessary facilities, and integrating modern scientific approaches into the teaching process. These efforts are expected not only to preserve Islamic astronomy within the dayah environment but also to make it relevant in addressing contemporary challenges.

Keywords: Revitalization, Islamic Astronomy, Dayah MUDI Mesra

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Abstrak

Ilmu falak sebagai bagian dari khazanah keilmuan Islam memiliki posisi strategis dalam mendukung implementasi ajaran agama, seperti penentuan awal bulan Hijriah. Dalam perspektif sejarah, ilmu ini pernah menjadi salah satu cabang ilmu unggulan di dunia Islam, tetapi saat ini perannya mulai tergeser, terutama di pesantren tradisional yang cenderung lebih fokus pada ilmu fiqh dan cabang-cabang ilmu lainnya. Kurangnya tenaga ahli, minimnya sarana prasarana, serta dikotomi antara hisab dan rukyat memperparah situasi ini, sehingga eksistensi ilmu falak di lingkungan pesantren tradisional, seperti di Aceh, semakin terancam. Penelitian ini bertujuan untuk menganalisis muatan ilmu falak yang diajarkan di Dayah MUDI Mesra Samalanga, Bireun, Aceh, serta mengeksplorasi strategi pengembangan ilmu falak agar dapat kembali menjadi bagian integral dari kurikulum pesantren tradisional. Penelitian ini menggunakan pendekatan deskriptif empiris dengan metode kualitatif, melibatkan pengumpulan data melalui observasi, wawancara mendalam, dan studi dokumen. Hasil penelitian menunjukkan bahwa ilmu falak telah mulai dimasukkan dalam kurikulum Dayah MUDI Mesra sebagai langkah inovatif untuk merevitalisasi khazanah keilmuan Islam. Strategi yang dirancang mencakup penguatan kapasitas tenaga pengajar, penyediaan sarana pendukung, dan integrasi pendekatan sains modern dalam pembelajaran. Upaya ini diharapkan tidak hanya melestarikan ilmu falak di lingkungan dayah, tetapi juga menjadikannya relevan dalam menjawab tantangan zaman.

Kata Kunci: Revitalisasi, Ilmu Falak, Dayah MUDI Mesra

Introduction

Ilmu falak, commonly referred to as astronomy, belongs to the category of natural sciences that has developed since the early stages of human civilization. With the encounter between Islam and ilmu falak, a rapid development occurred, encompassing both its essence and its scope. Ilmu falak has not only functioned as scientific knowledge but has also become an integral part of the Islamic intellectual tradition, which flourished significantly during the reign of Caliph al-Mansur of the Abbasid dynasty (Luthfi, 2022). In this context, ilmu falak gave rise to various theoretical formulations used to interpret religious injunctions, particularly those related to the determination of ritual times.

One of the most significant applications of ilmu falak in religious practice is the determination of the beginning of the Hijri months, such as Ramadan and Shawwal, which constitutes a religious obligation. This determination does not rely solely on the observation of the new moon (rukya al-hilal), but also accommodates astronomical calculations (hisab). In certain cases, hisab is even considered capable of substituting rukya in determining the beginning of Hijri months, which has subsequently given rise to debates between the hisab and rukya schools within Islamic discourse.

In Indonesia, particularly in Aceh, there exists a traditional Islamic educational institution known as *dayah*. This institution plays a significant role in preserving the continuity of Islamic intellectual heritage, including *ilmu falak*. While most *pesantren* in Indonesia tend to prioritize other disciplines such as *fiqh* and *balaghah*, some still maintain the practice of *rukyat* in determining ritual times. In addition, the teaching of *ilmu falak* based on *kitab kuning* (classical Islamic texts) continues to be practiced in a number of *pesantren*.

Although *ilmu falak* has long been part of the Islamic scholarly tradition, its presence in the curriculum of traditional *pesantren* education, including those in Aceh, remains limited. In several *pesantren*, *ilmu falak* is not prioritized due to the lack of competent instructors in this field as well as limited facilities and infrastructure to support its teaching. Consequently, *ilmu falak* has not received adequate attention and tends to be marginalized among students.

This condition is further exacerbated by the dichotomy between the *hisab* and *rukyat* schools in determining the beginning of Hijri months, particularly in relation to Ramadan and Islamic festivals. The rapid development of information technology has intensified these differences, as faster and more accessible information often reinforces debates between the two approaches. In this regard, the revitalization of *ilmu falak* within traditional *pesantren* becomes a crucial step, considering the strategic role of *pesantren* in preserving and transmitting Islamic intellectual heritage.

As a traditional Islamic educational institution deeply rooted in Islamic tradition, *dayah* in Aceh possesses distinctive characteristics compared to *salaf pesantren* in other regions, such as Java. Acehnese *dayah* not only function as centers for *fiqh* education but also play a role in preserving various aspects of Islamic scholarship. The inclusion of *ilmu falak* in the curriculum of *Dayah MUDI Mesra Samalanga* represents an important example of efforts to revitalize *ilmu falak* based on Islamic intellectual heritage, although its implementation has not yet fully adopted modern scientific approaches.

Dayah Ma'hadal Ulum Diniyah Islamiyah Mesjid Raya (MUDI Mesra), one of the oldest traditional Islamic educational institutions in Aceh, has initiated a new step by incorporating *ilmu falak* into its curriculum. This initiative is expected to serve as a model for other *pesantren* to undertake similar efforts in introducing *ilmu falak* to their students. Any curricular change at *Dayah MUDI Mesra* must undergo careful analysis and be accompanied by appropriate strategies to ensure that the intended objectives are effectively achieved.

As a discipline within Earth and space sciences, *ilmu falak* possesses a high level of complexity and requires a holistic approach to teaching and learning (Taufiqurrahman et al., 2022). During the medieval period, Islamic civilization made substantial contributions to the development of Earth and space sciences. The *ilmu falak* that emerged during this era was not only studied by Muslims but also attracted the interest of non-Muslim scholars (Zahroya & Syarif, 2021). The inclusion of *ilmu falak* in the curriculum of *Dayah MUDI Mesra* is therefore not merely an effort to preserve Islamic intellectual heritage, but also a strategic response to the potential disappearance of *ilmu falak* instruction in traditional *pesantren*.

This study aims to further examine the content of ilmu falak taught at Dayah MUDI Mesra Samalanga, Bireuen, Aceh. The focus of this research is to identify how ilmu falak is taught and received within the traditional pesantren environment, as well as how its curricular implementation enriches the pesantren's intellectual tradition. Additionally, this study seeks to analyze the strategies employed in the development of ilmu falak in traditional pesantren, taking into account advances in science and technology that have reshaped contemporary ilmu falak.

This research is expected to make a significant contribution to the development of ilmu falak in traditional pesantren, particularly in Aceh. By exploring and integrating ilmu falak into the pesantren curriculum, this study has the potential to strengthen the role of pesantren as educational institutions that not only teach fiqh and religious sciences, but also preserve and develop the rich legacy of Islamic scholarship, including ilmu falak. Through these efforts, ilmu falak is expected to once again become an integral part of pesantren education while remaining relevant to the evolving challenges of the modern era.

Literature Review

Studies on the teaching of ilmu falak (Islamic astronomy) in Islamic boarding schools (pondok pesantren) are not new. A number of scholars have previously conducted research and published their findings on this subject. Muslem, in his article entitled "Problema Santri dalam Pembelajaran Ilmu Falak di Dayah Darul Falah Kecamatan Syamtalira Aron Kabupaten Aceh Utara," provides an engaging description of the model and dynamics of ilmu falak instruction at Dayah Darul Falah, Syamtalira Aron, North Aceh. The article illustrates how ilmu falak has become a compulsory subject in the dayah curriculum, yet faces several obstacles, such as students limited mathematical foundations and insufficient teacher competence, which have led to the weakening of ilmu falak's institutional sustainability (Muslem, 2021). This study shares similarities with the present research in its discussion of the continuity and challenges of ilmu falak in traditional dayah in Aceh. However, while Muslem's work focuses on learning constraints among students and teachers, this study emphasizes strategies for revitalizing and developing the intellectual tradition of ilmu falak within the dayah environment.

Abdul Mughits, in his work entitled "Kajian Ilmu Falak di Pesantren Salaf di Jawa Tengah dan Jawa Timur," offers a detailed analysis of differences in the ilmu falak curriculum taught in salaf pesantren in Central and East Java. He explains that these differences stem from the prerogative authority of pesantren leaders in determining curricula, which is often influenced by respect for the authors of classical falak texts (Mughits, 2016). This study aligns with the present research in examining the substance of ilmu falak in traditional pesantren. Nevertheless, whereas Mughits focuses on curricular comparison between regions, this research concentrates on strategies for developing ilmu falak within Acehnese dayah, which employ learning models distinct from Javanese salaf pesantren.

Padlan Padil, in his research titled "Eksistensi Ilmu Falak di Pondok Pesantren Syekh Ahmad Daud An-Naqsyabandy," analyzes the role of Pesantren Syekh Ahmad Daud An-Naqsyabandy in disseminating ilmu falak. His study

highlights the pesantren's existence as an institution contributing to the teaching of ilmu falak, but does not extensively discuss the substance of the subject matter or strategies for its development (Padil, 2022). While sharing a similar focus on ilmu falak in traditional pesantren settings, this study differs by emphasizing the content of ilmu falak instruction and strategies for developing its intellectual tradition within the dayah context.

Siti Tatmainul Qulub, in her study "Integrasi Astronomi dalam Ilmu Falak di PTAI dan Pondok Pesantren," comprehensively examines the integration of astronomy and Islamic astronomy at Islamic higher education institutions (UIN Walisongo Semarang) and Pondok Pesantren al-Mubarak Lanbunan, Madura. Her findings indicate that such integration has been implemented, although not yet optimally, in both institutions (Qulub, 2018). This study shares common ground with the present research in its discussion of ilmu falak within Islamic educational settings. However, while Qulub focuses on comparative integration between higher education and pesantren, this research emphasizes the background of differing integration standards and the development strategies of ilmu falak within the dayah tradition.

Pepep Fuad Muslim et al., in their article "Dinamika dan Perkembangan Ilmu Falak dari Era Pra-Islam hingga Era Kontemporer (The Dynamics and Development of Astronomy from the Pre-Islamic Era to the Contemporary Era)," provide a detailed account of the development of ilmu falak from the pre-Islamic period to the contemporary era. The article also explores the motivations of Nusantara scholars in preserving ilmu falak as part of Islamic intellectual heritage, concluding that such motivations include: (1) fulfilling fundamental religious needs related to prayer times, the beginning of lunar months, and the determination of the qibla; (2) concerns over the potential disappearance of ilmu falak amid modern developments; and (3) complementing and refining religious issues related to calculation (*hisab*) (Muslim et al., 2023). While sharing a concern for the preservation of ilmu falak as Islamic intellectual heritage, this study differs by focusing on strategies for developing ilmu falak specifically within Acehnese dayah.

This research addresses a gap in ilmu falak studies by offering a unique and original approach that focuses on strategies for revitalizing and developing the intellectual tradition of ilmu falak within traditional dayah in Aceh. Unlike previous studies that primarily discuss learning constraints, curricular comparisons, institutional existence, or the general historical development of ilmu falak, this research provides an in-depth analysis of how development strategies can be tailored to the distinctive characteristics of traditional dayah. This approach is crucial for ensuring the sustainability and relevance of ilmu falak in the face of modernization, while simultaneously strengthening its position as an integral component of Islamic intellectual heritage. Consequently, this study not only enriches the academic literature but also offers a strategic foundation for the development of ilmu falak in traditional pesantren, particularly within the context of Islamic education in Aceh.

Research Methodology

This study employs a qualitative method with an empirical–descriptive approach aimed at exploring the content of ilmu falak within the intellectual tradition of traditional pesantren at Dayah MUDI Mesra, Samalanga, Bireuen Regency. A descriptive research design was chosen to systematically portray the phenomena through direct field observation. Primary data were obtained from interviews with pesantren leaders, teaching staff, and students, while secondary data were collected from books, academic journals, previous research findings, and interviews with relevant parties who were not directly involved in the research setting.

Data were collected through both participant and non-participant observation, as well as in-depth interviews to obtain comprehensive information. Non-participant observation was conducted to understand falak-related activities in the pesantren in a general manner, whereas participant observation involved the researcher's direct engagement in activities such as hisab and rukyat al-hilal. The collected data were then analyzed through several stages: editing to ensure data completeness, classifying to reduce and categorize data according to thematic relevance, analyzing to organize the data into systematic patterns, and concluding to draw conclusions based on the results of the analysis.

To ensure research validity, methodological triangulation was applied by comparing data from multiple sources, along with member checking to verify the accuracy of the data with the research participants. Raw data obtained from observations and interviews were processed into organized narratives and subsequently compiled into a research draft for publication. This process ensured that the data used were accurate, relevant, and aligned with the objectives of the study.

Revitalization of Ilmu Falak within the Intellectual Tradition of Dayah in Aceh

The term revitalization is derived from the English word revitalization, which means restoring something to a position of importance. Terminologically, revitalization refers to a process or effort to reactivate something that has been neglected. It denotes an attempt to revive certain forms of wisdom or traditions preserved by particular communities, which function to sustain their civilization. The process of revitalization is carried out after in-depth observation of existing weaknesses, which then become the focus of renewal through selected methods (Ulya & Tohari, 2022).

The revitalization of ilmu falak within the intellectual tradition of traditional Islamic boarding schools (dayah) in Aceh constitutes an important issue in preserving a long-standing scientific heritage. Traditional pesantren, which play a central role in religious education in Aceh, have historically served as spaces where religious teachings and scientific knowledge intersect. In the past, ilmu falak, particularly in relation to religious practices such as determining prayer times and the direction of the qibla, was an integral component of the pesantren curriculum. Over time, however, many pesantren have reduced or even eliminated the teaching of this discipline. Revitalization thus becomes a crucial step in

reintroducing and strengthening the understanding and teaching of ilmu falak among Acehnese students, not only to preserve tradition but also to enhance scholarly quality in line with contemporary developments.

The concept of revitalization employed in this study refers to efforts to revive ilmu falak by renewing its approaches and methods in accordance with the needs and context of the modern era. Revitalization does not merely entail restoring past traditions, but also introducing innovative elements through critical observation of previous shortcomings in ilmu falak studies. This process includes the application of new methods that enable ilmu falak to remain relevant and responsive to the educational needs of pesantren in Aceh, both in teaching practices and scholarly development. Such revitalization is expected to refresh understandings of ilmu falak, reintegrate it into pesantren education, and serve as a means of preserving local wisdom.

Ilmu falak is a scientific discipline concerned with the study of celestial bodies and phenomena beyond the Earth's atmosphere. It integrates various fields such as physics, mathematics, chemistry, geodesy, and astronomy to understand celestial movements and their applications in daily life (Anzaikhan & Roni, 2021). In the Islamic context, ilmu falak is closely connected to fiqh, particularly in determining times of worship such as prayer and fasting. It also plays a crucial role in determining the qibla direction and the beginning of Hijri months (Rakhmadi, 2016).

The scope of ilmu falak is broad, encompassing aspects such as celestial observation (*ru'yah*) and mathematical calculation (*hisab*) for religious purposes. Although often equated with modern astronomy, ilmu falak in the sharia context focuses primarily on celestial movements related to religious observance. Moreover, it provides guidance for determining daily worship times, which are highly dependent on the position of the sun. Its study also includes natural phenomena such as lunar and solar eclipses, which are associated with specific religious practices, including eclipse prayers.

Within the intellectual tradition of traditional pesantren in Aceh, particularly *dayah*, ilmu falak has long been part of the curriculum taught to students. As educational institutions, *dayah* play a vital role in disseminating and teaching Islamic sciences, including ilmu falak. In this context, ilmu falak is not only used to understand religious timings but also to introduce an understanding of the universe through approaches that go beyond textual religious sources and incorporate natural sciences. Initially, ilmu falak instruction in *dayah* relied on simple calculation methods based on the astronomical data available at the time. As scientific knowledge advanced, these methods evolved by incorporating more complex variables and technological tools to improve accuracy.

Studies of ilmu falak within the pesantren tradition can be divided into three periods: the initial period characterized by simple calculations without corrective data; the intermediate period involving multiple calculation systems with variables requiring correction; and the contemporary period, which integrates ilmu falak with modern astronomy (Mughits, 2016). These periods have influenced the diversity of *hisab* methods employed. In traditional Acehnese pesantren, *hisab* methods are classified as *hisab akurat* I, II, and III. The use of the term "accurate" reflects distinctive characteristics of ilmu falak studies in Aceh

compared to salaf pesantren in other parts of the archipelago (A. Ibrahim, personal communication, July 22, 2023).

In general, hisab methods in ilmu falak are classified as haqiqi taqribi, haqiqi tahqiqi, haqiqi tadqiqi, and haqiqi 'asri. The haqiqi taqribi method employs approximate calculations based on available astronomical data, with a relatively large margin of error, suitable for general purposes that do not require high precision. Haqiqi tahqiqi is more meticulous, incorporating several key variables, though not all factors are fully considered, resulting in greater accuracy than taqribi but still limited precision. Haqiqi tadqiqi represents a more rigorous and detailed method, incorporating a wider range of variables and comprehensive astronomical data, producing calculations that closely approximate accuracy. Meanwhile, haqiqi 'asri integrates traditional ilmu falak with modern astronomical technology, utilizing advanced instruments and up-to-date data to achieve highly precise calculations adaptable to local conditions (Aziz & Munawar, 2021). Each method reflects the level of accuracy sought and the availability of data in its respective period.

The hisab methods practiced in Acehnese dayah are strongly influenced by historical phases of ilmu falak, as reflected in the application of hisab akurat I, II, and III. In hisab akurat I, celestial bodies are treated as static, without accounting for variables affecting their motion. The astronomical data employed largely derive from classical works, such as *Zij al-Sultani* by Sultan Ulugh Beg (Fadhel & Izzuddin, 2023). In hisab akurat II, several variables are taken into account, although some are excluded due to perceived insignificance. In contrast, hisab akurat III incorporates a broader and more precise set of variables, drawing on modern astronomical data and empirical observations to yield more accurate results.

The teaching of ilmu falak in Acehnese dayah generally employs the talaqqi method, a traditional pedagogical approach in pesantren education. Through talaqqi, teachers transmit knowledge directly to students using specific classical texts as primary references. This face-to-face instructional process aims to ensure accurate and in-depth understanding of ilmu falak. The method also strengthens direct interaction between teachers and students, making learning more engaging and comprehensible (Saifannur, 2022).

The incorporation of ilmu falak into the dayah curriculum in Aceh remains uneven. Not all dayah teach ilmu falak, particularly those that prioritize fiqh and Qur'anic exegesis. Consequently, ilmu falak is often positioned as a supplementary or extracurricular subject rather than a core component of the curriculum. This disparity affects the quality of ilmu falak instruction across different dayah and highlights the need for efforts to strengthen its teaching, especially in institutions classified as pesantren mu'adalah salafiyah.

The enactment of Law No. 18 of 2019 on Pesantren represents a significant milestone in recognizing and strengthening the existence of pesantren in Indonesia, including Aceh. One of the law's provisions is the recognition of pesantren that develop curricula based on classical Islamic texts (*kitab kuning*) and Islamic instruction. Within this framework, ilmu falak is identified as one of the subjects that should be included in the pesantren curriculum, particularly for institutions categorized as mu'adalah salafiyah (Sutrisno et al., 2024). This legal framework provides an opportunity for ilmu falak to reemerge as a vital

component of pesantren education in Aceh, in line with national curriculum standards.

The implementation of a new curriculum mandating ilmu falak in mu'adalah salafiyah pesantren presents its own challenges. Dayah that previously did not include ilmu falak as a core subject must prepare qualified human resources capable of teaching the discipline, as well as instructional materials aligned with the new curricular standards. Therefore, the revitalization of ilmu falak in Acehnese dayah must be carried out carefully, ensuring that institutions adopting this subject can implement it effectively by providing competent instructors and relevant, high-quality learning materials.

Dayah MUDI Mesra Samalanga, Bireuen

Dayah Ma'hadal Ulum Diniyah Islamiyah Mesjid Raya (MUDI Mesra) is a traditional Islamic educational institution operating under the auspices of the Al-Aziziyah Islamic Education Foundation (Yayasan Lembaga Pendidikan Islam—LPI Al-Aziziyah). The dayah is located in Mideun Jok Village, Mesjid Raya Mukim, Samalanga Subdistrict, Bireuen Regency, Aceh Province. Specifically, MUDI Mesra is situated on Iskandar Muda Street, Gampong Mideun Jok, approximately two kilometers from the center of Samalanga town. The presence of MUDI Mesra in Samalanga forms part of the long-standing Islamic scholarly tradition that has flourished in this area, which is widely known as a “kota santri” (city of Islamic students) due to the large number of dayah operating there.

The historical roots of MUDI Mesra trace back to the Mesjid Raya Poe Teumeureuhom, established by Sultan Iskandar Muda in the early seventeenth century. This mosque functioned as a center for Islamic education and scholarly inquiry in Samalanga and later became the foundation for the establishment of Dayah MUDI. In its early phase, religious instruction was conducted by Faqih Abdul Gani, who served as the Grand Imam of Mesjid Raya Poe Teumeureuhom and was known as a highly dedicated religious scholar. Unfortunately, the early development of the dayah was not well documented, most likely due to the impact of colonial rule. Systematic historical records concerning this institution only began to appear in the early twentieth century (Munawir et al., 2022).

In 1920, Teuku Muhammad, the last Ulee Balang of Samalanga, appointed Tgk. Syiek Tanjungan Ahmad Syihabuddin Idris as the Grand Imam of Mesjid Raya Poe Teumeureuhom and Qadhi of the Samalanga region, with the responsibility of teaching Islamic sciences to the surrounding community. At that time, teaching and learning activities were centered in the mosque. As the number of students increased, Tgk. Syihabuddin Idris established simple huts made of bamboo and palm leaves around the mosque, which gradually developed into a formal dayah. During his leadership, the number of students reached approximately 100 male and 50 female students, supported by seven teachers. Despite the limited facilities—such as dormitories constructed from bamboo and thatch—the dayah continued to grow and attract students.

Dayah MUDI Mesra has undergone several leadership transitions. The first leader, Tgk. Syiek Tanjungan Ahmad Syihabuddin Idris, served from 1920 to 1927. Leadership was subsequently continued by Tgk. Abi H. Hanafiah bin Abbas (1927–

1958), Abon Samalanga H. Abdul 'Aziz bin M. Shaleh (1958–1989), and since 1989, the dayah has been led by Abu Syekh H. Hasanoel Bashry bin H. Gadeng. Alongside socio-political changes in Aceh and Indonesia, educational models in Aceh have developed into two main types: traditional and modern dayah. Traditional dayah emphasize a curriculum that separates religious sciences from general sciences, whereas modern dayah tend to integrate both. MUDI Mesra has consistently maintained its identity as a traditional Islamic educational institution, adhering to a curriculum that distinguishes between religious and general disciplines.

The curriculum implemented at Dayah MUDI Mesra focuses on Islamic religious sciences and Arabic grammar derived from kitab kuning (classical Islamic texts) authored by earlier scholars, particularly from the medieval period. The curricular model employed is a separated subject curriculum, in which each subject is taught independently within the broader framework of foundational Islamic disciplines. This curriculum is designed to provide students with an in-depth understanding of Islamic sciences that address both the spiritual and intellectual needs of the community.

The vision of Dayah MUDI Mesra is to produce ulama and intellectuals grounded in the panca jiwa as the ruh al-ma'had, namely sincerity, simplicity, self-reliance, Islamic brotherhood (ukhuwah Islamiyah), and freedom. This vision reflects the dayah's commitment to nurturing generations who possess not only strong religious knowledge but also character aligned with Islamic principles. Its mission encompasses four main objectives: first, to provide education based on the creed of Ahl al-Sunnah wa al-Jama'ah and the Shafi'i school of fiqh; second, to educate and cultivate the piety of students and the broader community through faith, knowledge, practice, and da'wah; third, to strengthen and preserve Islamic values in accordance with the understanding of the salaf al-salih; and fourth, to produce a self-reliant generation capable of contributing creatively within the framework of Islam, faith, and ihsan.

The establishment of Dayah MUDI Mesra aims to develop human resources who not only possess noble character and profound religious knowledge, but are also capable of contributing actively to society. The dayah is committed to producing a generation characterized by strong moral integrity, moderation, patriotism, and high social solidarity. Through education grounded in Islamic values and systematic instruction, MUDI Mesra strives to function not only as a center for producing ulama, but also as an institution that cultivates intellectuals capable of responding to the challenges of the modern era.

The Content of Ilmu Falak within the Educational Environment of Dayah MUDI Mesra Samalanga, Bireuen

Curriculum constitutes a structured educational plan that encompasses essential elements such as objectives, learning materials, instructional methods, and evaluation systems designed to achieve specific educational goals (Usdarisman et al., 2024). As a core component of education in dayah, the curriculum plays a crucial role in developing students' knowledge, skills, and religious as well as moral values. In the dayah context, the curriculum is not merely a list of instructional materials but also serves as a conceptual framework guiding the

planning, implementation, and evaluation of the learning process. Its formulation requires careful consideration of various perspectives, including Islamic educational philosophy, Acehnese socio-cultural values, and the psychological needs of students. A comprehensive understanding of the curriculum enables dayah teachers to design learning experiences that are more relevant, effective, and inclusive.

Dayah MUDI Mesra, as one of the traditional dayah institutions in Aceh, implements a curriculum consisting of subjects listed in a structured learning schedule taught by teachers to their students. The curriculum model adopted is a separated subject curriculum rather than an integrated one. The primary learning materials are kitab kuning (classical Islamic texts) systematically compiled by scholars and delivered through the talaqqi method, which involves direct reading and explanation of the texts from beginning to end (A. H. Marhaban, personal communication, October 18, 2023).

The selection of instructional materials or kitab kuning in this dayah is based on inherited scholarly traditions passed down across generations, as well as careful evaluation of the content to ensure alignment with the institution's vision and mission. This selection process significantly influences the distinctive scholarly orientation of traditional pesantren, which tends to remain relatively stable over time. Ilmu falak, for instance, was initially not included as a compulsory subject in Dayah MUDI Mesra. Historically, it had not been taught by previous generations and was not regarded as part of the scholarly heritage that needed to be preserved, despite its relevance to resolving various fiqh issues through astronomical calculations (B. Muhammadon HS, personal communication, October 19, 2023).

Nevertheless, the role of ilmu falak has been acknowledged in Dayah MUDI Mesra, particularly in addressing falak-related issues such as determining the beginning of Ramadan and Islamic festivals. The dayah prioritizes professional and institutional alignment by adhering to the official isbat decisions issued by the Government of the Republic of Indonesia, rather than conducting independent hisab or rukyah. This approach reflects a commitment to maintaining unity among Indonesian Muslims and preventing doctrinal disputes that could lead to division. By following governmental policy, Dayah MUDI Mesra ensures that the teaching of ilmu falak remains relevant to contemporary developments while upholding Islamic principles and fostering harmony in religious practice.

The issuance of the Indonesian Ministry of Religious Affairs Regulation (PMA) No. 31 of 2020 on Pesantren Education, derived from Law No. 18 of 2019, has significantly transformed the dynamics of education, including within traditional pesantren environments (Habibi, 2024). Previously, traditional dayah institutions such as MUDI Mesra were not formally recognized as providers of formal education. However, this regulation has created opportunities for traditional dayah to be formally acknowledged by the state without requiring the establishment of formal schools or abandoning their distinctive kitab kuning-based orientation.

Traditional dayah institutions may now participate in formal education pathways through Satuan Pendidikan Muadalah (SPM), Pendidikan Diniyah Formal (PDF), or Ma'had Aly. Dayah MUDI Mesra has obtained formal recognition through

the SPM and Ma'had Aly pathways, thereby qualifying as a dayah muadalah. Although SPM was initially regulated under PMA No. 18 of 2014, its formal recognition was not fully implemented. PMA No. 31 of 2020 strengthened this recognition by removing the term “may” from its definition. The regulation defines muadalah education as pesantren-based formal education that develops curricula rooted in the distinctive characteristics of pesantren, particularly kitab kuning or *dirasah Islamiyah*.

The regulation further classifies SPM into two categories: Muadalah Salafiyah and Muallimin. SPM consists of two educational levels, namely Muadalah Ula (equivalent to MI/MTs) and Muadalah Wustha (equivalent to MA). As a consequence of implementing SPM, traditional dayah institutions are required to incorporate general subjects and standardize pesantren curricula, including mandatory subject components for all students. The distinction between Muadalah Salafiyah and Muallimin lies in their instructional foundations: the former is based on kitab kuning, while the latter emphasizes *dirasah Islamiyah* (Panani et al., 2024). Dayah MUDI Mesra has chosen the Muadalah Salafiyah pathway. The basic structure and framework of the dayah muadalah curriculum are formulated by the Majelis Masyayikh, and all Muadalah Salafiyah institutions must adhere to the Decree of the Director General of Islamic Education No. 6843 of 2015.

This policy requires Dayah MUDI Mesra to revitalize ilmu falak as a compulsory subject, despite the fact that it had not previously been taught as a standalone discipline. The decision to incorporate ilmu falak into the curriculum is closely linked to various fiqh issues within society, such as differing determinations of the beginning of Ramadan and changes in mosque qibla orientation. The revitalization of ilmu falak at Dayah MUDI Mesra began by formally positioning it as a mandatory component of the curriculum.

Initially, ilmu falak was not taught as an independent subject, although several teachers had studied and conveyed certain aspects of it. As educational developments progressed at Dayah MUDI Mesra, the ilmu falak curriculum gradually evolved toward modern astronomical instruction while remaining integrated with fiqh. At the Muadalah Wustha level (equivalent to senior secondary education), ilmu falak is introduced as a foundational subject covering basic astronomical concepts, celestial motion, and practical applications such as determining qibla direction and the beginning of lunar months. The instructional materials are no longer based on kitab kuning but instead utilize an introductory textbook authored by a senior teacher of Dayah MUDI Mesra, Tgk. Muhammad Nasir Hasbullah, S.Ag (Aba Meureudu), entitled “Mengenal Istilah-Istilah Dasar Ilmu Falak” (M. Asy'ari, personal communication, October 20, 2023).

Discussions and interviews with the falakiah team at Dayah MUDI Mesra reveal a shared consensus on the importance of preserving the distinctive characteristics of traditional dayah, particularly those rooted in kitab kuning. The team recognizes the necessity of maintaining traditional values that have long shaped the institution's educational identity. At the same time, they acknowledge that incorporating a modern ilmu falak curriculum is an unavoidable necessity. Introducing ilmu falak through broader approaches, including the use of modern technology and instruments, is expected to enhance students' understanding without undermining foundational principles inherited from the dayah tradition.

Despite changes in instructional methods, efforts are made to balance innovation with the preservation of inherited scholarly traditions. The falakiyah team hopes that integrating modern ilmu falak will not only improve educational quality but also strengthen the identity of the dayah as a dynamic and evolving center of Islamic education.

Strategies for Developing the Scholarly Tradition of Ilmu Falak at Dayah MUDI Mesra Samalanga, Bireuen

Education at Dayah MUDI Mesra Samalanga, similar to many traditional pesantren in Aceh, follows a long-established cadre-based educational model. This model emphasizes the formation of future teachers, commonly referred to as *tengku*, who are expected to teach within the dayah. Each *tengku* who has completed a certain level of education and demonstrated competence in a kitab kuning-based curriculum plays a vital role in ensuring the continuity of education in the pesantren. The teaching process is carried out with sincerity and without expectation of material compensation, prioritizing dedication and service to the institution (Muslem, 2019).

As ilmu falak has become a compulsory component of the educational curriculum at Dayah MUDI Mesra Samalanga, several challenges have emerged. First, the limited number of teachers (*tengku*) with adequate expertise in ilmu falak constitutes a major obstacle. Second, the scarcity of ilmu falak literature within the pesantren environment creates difficulties in determining instructional materials that align with the standards of Muadalah Salafiyah education. Third, the lack of clearly defined learning objectives for ilmu falak has affected the effectiveness of its instruction. These issues have become a central concern for the management of Dayah MUDI Mesra in their efforts to develop the scholarly tradition of ilmu falak within the pesantren (T. Ardiansyah, personal communication, October 22, 2023).

To address these challenges, Dayah MUDI Mesra Samalanga has adopted two strategic approaches to developing ilmu falak: external and internal cadre development. External cadre development involves collaboration with institutions outside Dayah MUDI to provide teachers with adequate competence in ilmu falak. Internal cadre development, on the other hand, focuses on strengthening human resources within the dayah itself. These strategies were selected due to their compatibility with the traditional recruitment patterns of pesantren educators and their proven effectiveness in producing graduates who demonstrate strong institutional loyalty and contribute to the sustainability of traditional dayah education (A. H. Marhaban, personal communication, October 18, 2023).

External cadre development is carried out by sending delegations of teachers from Dayah MUDI Mesra to participate in falakiyah training programs or workshops organized by the Aceh Dayah Education Office (Dinas Pendidikan Dayah Aceh / DPDA). These activities aim to enhance teachers' understanding of ilmu falak and introduce them to prominent Acehnese falak scholars who may serve as reference figures. Dayah MUDI Mesra has shown strong enthusiasm in sending representatives to these workshops, with the expectation of deepening teachers' knowledge of ilmu falak. Although these programs provide valuable new

insights, challenges persist due to the limited duration of training and the insufficient number of participants to meet the teaching needs of Dayah MUDI Mesra.

External cadre development consists of two forms: formal and informal. Formal cadre development is conducted through participation in workshops organized by DPDA, while informal cadre development involves sending teachers to pursue independent learning at other institutions or directly under Acehnese falak scholars. Although these initiatives offer foundational knowledge of ilmu falak, their effectiveness is constrained by limited time allocation and the small number of participants from Dayah MUDI Mesra. Moreover, informal learning approaches face additional challenges, as they are not based on kitab kuning and tend to follow less flexible learning patterns, resulting in suboptimal outcomes.

Recognizing that external cadre development has not fully met institutional needs, Dayah MUDI Mesra subsequently implemented a more structured internal cadre development strategy. This internal approach consists of three stages: tutor selection, interest recruitment, and the establishment of an independent community. Tutor selection involves identifying teachers or alumni of Dayah MUDI Mesra who possess competence in ilmu falak and are willing to dedicate their time to teaching. One selected tutor is Tgk. Muhammad Nasir Hasbullah (Aba Meureudu), an alumnus of Dayah MUDI Mesra who studied ilmu falak under the guidance of the charismatic Acehnese scholar Tgk. H. Abdullah Ibrahim. This selection is expected to ensure higher quality and sustainable instruction (T. Ardiansyah, personal communication, October 22, 2023).

Interest recruitment constitutes a crucial stage in internal cadre development, as students' motivation to study ilmu falak is not always as strong as their interest in other subjects. Therefore, more engaging and practical instructional methods are applied, particularly for third-grade students. Ilmu falak instruction is conducted every Wednesday and Saturday, followed by an annual evaluation to assess students' competencies. Although the evaluation indicates a positive level of interest among students, the number of individuals who meet the required competency standards remains insufficient to fulfill future teaching needs. This situation has encouraged Dayah MUDI Mesra to continue seeking strategies to increase student participation.

As a further step, Dayah MUDI Mesra established an independent community tasked with developing ilmu falak within the pesantren environment. This community, named the Falakiyah Team of MUDI Mesjid Raya Samalanga, consists of seven members comprising teachers with both interest and competence in ilmu falak. The primary objective of this team is to conduct ilmu falak instruction at the SPM Aliyah level and to preserve the existence of ilmu falak within Dayah MUDI Mesra as well as in Acehnese pesantren more broadly. The team also plays a role in expanding the scholarly tradition of ilmu falak through more organized and needs-based instructional activities (A. Aulia, personal communication, October 24, 2023).

The Falakiyah Team of MUDI Mesra operates on a one-year Hijri term, during which performance evaluations and target achievements are systematically conducted. The team focuses on two primary activities: student instruction and the development of ilmu falak. Instruction is delivered through closed workshops

consisting of 15 instructional hours, conducted over one to two days every four months. Although limited to foundational instruction, these activities are expected to enhance students' basic understanding of ilmu falak and prepare them as prospective teachers in the future.

The development of ilmu falak at Dayah MUDI Mesra involves two key aspects: community development and material development. Community development is achieved by opening enrollment for students interested in pursuing advanced studies in ilmu falak. Students who achieve the highest evaluation scores are recruited as members of the Falakiyah Team to continue the cadre development process. Material development is carried out through Focus Group Discussions (FGDs) aimed at evaluating instructional quality and identifying falak-related themes requiring further exploration. Through these FGDs, the team seeks solutions for integrating modern ilmu falak with the still-limited kitab kuning-based studies.

Material development is further supported through comparative studies with the Ilmu Falak Study Program at IAIN Lhokseumawe and the Tengku Chik Kuta Karang Observatory Center in Lhoknga, Aceh. These comparative initiatives are intended to enrich ilmu falak instruction through modern methods and instruments that are not yet available at Dayah MUDI Mesra. Through the combined efforts of material development and community strengthening, it is expected that Dayah MUDI Mesra will be able to offer ilmu falak instruction grounded in kitab kuning, in line with other pesantren subjects, thereby reinforcing the existence of ilmu falak within the Muadalah Salafiyah educational curriculum in Aceh.

Conclusion

Ilmu falak was initially not included as a compulsory component of the curriculum at Dayah MUDI Mesra Samalanga. Its incorporation as a mandatory subject emerged as a direct consequence of the implementation of the Salafiyah Satuan Pendidikan Muadalah (SPM) within the traditional dayah system. The content of ilmu falak taught at Dayah MUDI Mesra falls within the category of basic falak syar'i. However, the instructional materials used have not yet fully met the requirements of Muadalah Salafiyah, which mandate a curriculum grounded in kitab kuning.

To fulfill the demands of Muadalah Salafiyah in developing ilmu falak within the traditional pesantren environment, Dayah MUDI Mesra Samalanga has adopted a cadre-based development strategy implemented through two models: external and internal. External cadre development is carried out by delegating representatives to falakiyah-based institutions or prominent falak scholars, both through formal and informal channels. Internal cadre development is conducted in three stages: first, the selection of tutors; second, interest-based recruitment; and third, the establishment of the Falakiyah Team of MUDI Mesra.

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