

INTEGRATING SCIENCE AND RELIGION THEMATICALLY: A STUDY AT SDIT ALAM NURUL ISLAM, YOGYAKARTA

INDRIAN, F.¹ – BAHARUDDIN, B. H.² – TUMIRAN, M. A.² – MOHAMMAD, N.^{2*}

¹ *Faculty of Islamic Education, Ahmad Dahlan University, Yogyakarta, Indonesia.*

² *Academy of Contemporary Islamic Studies, Universiti Teknologi MARA, Selangor, Malaysia.*

**Corresponding author
e-mail: nashar2877[at]uitm.edu.my*

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Abstract. The integration of general science and religion engenders a dynamic relationship that serves to complement each other in the provision of holistic education. Within the framework of modern education, this integration represents a complex and critical process that addresses various life dynamics and challenges. The objective of this research is to investigate the integration of general science and religion within thematic learning in elementary schools, which involves synthesising various disciplines into a cohesive theme. This study employs a qualitative methodology, utilising in-depth interviews, observations, and documentation to gather comprehensive data. Conducted at SDIT Alam Nurul Islam, Sleman in Yogyakarta, Indonesia. The research involved participants including teachers, students, and school administrators. Data collection was facilitated through semi-structured interviews, observations, and documentation. Based on the analysis, the findings as follows: (a) integrations of general science and religious education within thematic learning; and (b) mediums of combination in thematic learning. In conclusion, the integration of general sciences and religion through thematic learning at SDIT Alam Nurul Islam represents a promising avenue for enriching education via the integrative sciences of Bayani, Burhani, and Irfani. To further advance this field of study, future research should focus on several key areas.

Keywords: *general sciences, religious knowledge, integrative science, thematic education, elementary education*

Introduction

The integration of general science and religion engenders a dynamic relationship that serves to complement each other in the provision of holistic education (Nasir and Hanif, 2022; Olson, 2011). Within the framework of modern education, this integration represents a complex and critical process that addresses various life dynamics and challenges. It is essential to note that integrating general science and religion extends beyond merely imparting knowledge of Quranic and hadith verses; it also entails cultivating a learning environment that is inclusive and supportive of students from diverse cultural and religious backgrounds. This approach allows religion to function as a guiding framework for human behaviour, thereby ensuring that moral values are upheld and maintained throughout the educational experience. The importance of integration in education is underscored by several compelling reasons. Firstly, the global community is characterised by cultural diversity and religiosity, necessitating an educational approach that accommodates the spiritual needs and values of various societal groups rather than focusing solely on general science (Daheri et al., 2023; Goodman et al., 2023; Saada, 2023). Secondly, religion serves as a foundational pillar for ethical and moral values in individuals' lives, and thus its integration into the school curriculum can enhance value awareness while still addressing other scientific and

knowledge-based aspects (Guna and Yuwantiningrum, 2024; Paramansyah et al., 2024). Thirdly, fostering understanding among diverse groups helps mitigate the potential for interfaith conflict by encouraging dialogue and deeper comprehension (Ma'ruf, 2024; Rofiqi and Haq, 2022). Additionally, integrating these perspectives aids students in understanding social, environmental, and humanitarian issues, thereby equipping them to confront global challenges inclusively (Ainscow, 2020). Furthermore, such integration promotes tolerance and appreciation for diversity among students (Aderibigbe et al., 2023; Mamlok, 2023). Finally, it facilitates the development of critical and reflective thinking, encouraging students to engage thoughtfully with their own beliefs and those of others (Dekker, 2020).

The phenomenon of dichotomic dualism in science persists to this day, as highlighted by Huda and Rodin (2021). The findings from the International Conference on Education indicate that dichotomous thinking among Muslims has been entrenched for an extended period, driven by the perception that religious science is primarily concerned with the hereafter, necessitating study, while general science focuses on worldly matters (Siregar, 2022; Asyari and Makruf, 2014). This dualism is further exemplified by the separation of educational institutions within Indonesia's education system, where the Ministry of Religion oversees religious education-including madrasah diniyah, religious higher education, and Islamic boarding schools-while public education, encompassing elementary schools, secondary schools, vocational schools, and public universities, is managed by the Ministry of Education and Culture and the Ministry of Research, Technology and Higher Education (Khoiriyah et al., 2023; Ramadhani et al., 2023; Tamami, 2019). This structural division underscores the ongoing challenges posed by dualistic thinking in the educational landscape. The presence of educational dichotomous dualism significantly impacts the development of student's character, particularly contributing to issues such as split personality and detachment from moral values, which are essential components of the educational process (Suyadi and Widodo, 2019). Given that human beings are born with inherent potential, the educational process should aim to shape individuals and cultivate their talents in alignment with divine principles (Aly and Thoyibi, 2020). To ensure that national education effectively develops students into holistic individuals, it is imperative to address the implications of dualism within the educational framework. One institution exemplifying the integration of general science and religion in thematic learning is Sekolah Dasar Islam Terpadu Alam Nurul Islam (SDIT Alam Nurul Islam). Preliminary data indicate that this school successfully merges general education with religious teachings into a curriculum that consistently reflects Rabbaniyyah values, thereby fostering a profound relationship between students and God (Allah). The objective of this research is to investigate the integration of general science and religion within thematic learning in elementary schools, which involves synthesising various disciplines into a cohesive theme. The anticipated outcomes of this research include providing practical guidance on effectively integrating general science and religion into thematic learning, ultimately promoting comprehensive student development.

Literature review

The approach of integrating general science and religion within thematic learning seeks to foster a comprehensive and balanced understanding among students, thereby contributing to character development and the enhancement of knowledge by merging academic and spiritual dimensions. This integrated methodology is posited to

significantly benefit students' development in several key areas, including the strengthening of character, the promotion of holistic understanding, and the enhancement of learning motivation (Aziza et al., 2024; Jackson and Cook, 2023; Fitrah and Kusnadi, 2022; Sadiyah and Wathon, 2022). By cultivating an educational environment that values both scientific inquiry and religious belief, this approach aims to equip students with the necessary tools to navigate their personal and intellectual growth effectively.

The concept of integrating general knowledge with religion

The integration of general scientific knowledge with religious beliefs in educational contexts aims to facilitate students' understanding of the relationship between scientific knowledge and their faith. This integration allows students to recognise that science and religion are not inherently contradictory but rather complementary in their quest to comprehend the universe and human existence (Ningsih et al., 2022; Abdullah, 2014). Amin Abdullah, a prominent Indonesian philosopher, further supports this notion, asserting that integration represents a relational dynamic between general science and religion (Syarnubi, 2022). Lathifah (2022) identifies four types of relationships between science and religion: (a) conflict, where religious concepts and scientific theories contradict each other; (b) independence, where both operate separately without interaction; (c) dialogical, where there is an interaction between the two; and (d) integration, where religious values infuse scientific concepts, or where certain scientific ideas diverge from religious doctrines.

In the realm of education, three distinct types of learning can be identified: the Bayani, Burhani, and Irfani patterns. The Bayani pattern represents a foundational phase centred on textual knowledge, wherein the teacher elucidates monotheistic content by incorporating religious values, predominantly utilising a lecture method. In contrast, the Burhani pattern signifies a stage of development and transformation that equips students with practical skills; this approach is contextual, guiding students through actions informed by *kawaniyyah* verses, thereby ensuring that learning transcends textual understanding to embrace nature as a medium and source of knowledge. Finally, the Irfani pattern embodies a stage of appreciation and self-awareness, focusing on the habituation of students towards self-improvement and service to others, ultimately preparing them to embody the roles of *al-'abd* (servant of Allah) and *al-khalifah* (steward of the earth) as mindful practitioners of their knowledge. This study advocates for the application of an integrative approach across five levels-philosophical, material, methodological, strategic, and evaluative-while simultaneously and synergistically merging these dimensions to transcend the scientific dichotomy between science and religion, thereby creating a cohesive learning process (Chanifudin and Nuriyati, 2020). The concept of integrating general science with religion can be simplified into the following diagram (*Figure 1*).

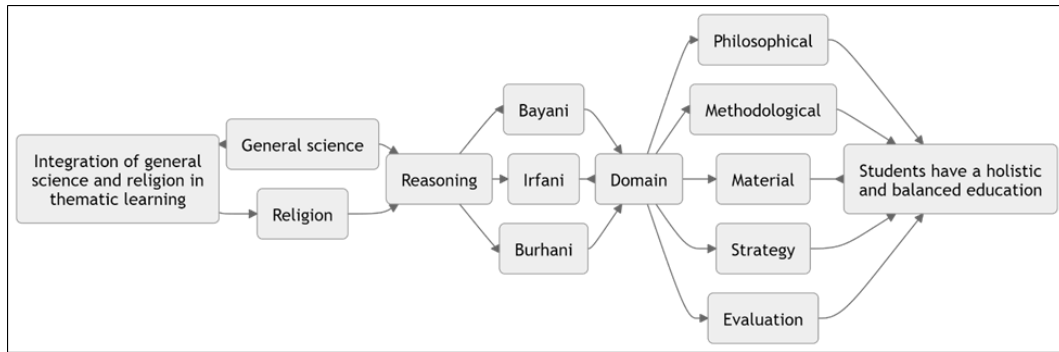


Figure 1. The framework of the concept of integrating general Science with religion in thematic learning.

The concept of thematic learning

Thematic learning, developed by Fogarty in 1991 and often referred to as the webbed model, represents an integrated approach to education that utilises themes to connect various subjects, thereby providing students with meaningful learning experiences (Aulia et al., 2023). This pedagogical model distinguishes itself from traditional learning methods through several key characteristics: it is student-centred, offers hands-on experiences, blurs the boundaries between subjects, presents concepts from multiple disciplines, maintains flexibility, and incorporates the principle of learning through play and enjoyment (Sulthon, 2024; Erita et al., 2020; Lena et al., 2019). Such attributes facilitate a holistic educational environment that encourages active engagement and deeper understanding among students. The theoretical underpinnings of thematic learning are grounded in three foundational pillars: philosophical, psychological, and juridical. The philosophical foundation is primarily influenced by three educational schools of thought-constructivism, progressivism, and humanism. Each of these perspectives contributes valuable insights into the effective implementation of integrative thematic learning for elementary students, particularly in the development of appropriate learning strategies and methodologies (Hakim, 2018). Constructivism, for instance, posits that learners actively construct their own understanding, while progressivism emphasises experiential learning and the relevance of education to students' lives.

From a psychological standpoint, the learning process is viewed as inherently linked to human behaviour, with students interacting dynamically with their physical and social environments (Sedrakyan et al., 2020). This perspective asserts that students construct their own realities through direct experiences, rather than merely absorbing information transmitted by teachers. Consequently, integrated learning approaches enable students to discern patterns and relationships across diverse fields of knowledge. Recognising that each student is a unique individual with distinct abilities and potential for growth, the teacher's role transitions from being a mere authority figure to that of a facilitator, guiding holistic development. The juridical foundation encompasses policies and regulations that support the implementation of integrative thematic learning in elementary education. For instance, Law No. 23 of 2002 concerning child protection in Indonesia, alongside Law No. 20 of 2003 regarding the National Education System, underscores the right of every child to receive education tailored to their personal development and intelligence levels (Fatmawati et al., 2022). These legal frameworks affirm that all Indonesian students are entitled to educational services that consider their

individual talents, interests, and abilities, thereby reinforcing the importance of thematic learning as a means to foster inclusive and responsive educational practices.

Materials and Methods

This study employs a qualitative methodology, utilising in-depth interviews, observations, and documentation to gather comprehensive data. Conducted at SDIT Alam Nurul Islam Sleman in Yogyakarta, Indonesia. The school is renowned for its integration of religious and general sciences through thematic learning. The research involved participants including teachers, students, and school administrators. Participants were selected using purposive sampling techniques to ensure relevance to the study's objectives. Data collection was facilitated through semi-structured interviews, observations, and documentation. The semi-structured interviews aimed at obtaining nuanced insights into the implementation of thematic learning that merges general science with religious education. Additionally, observational techniques were employed within the classroom setting to directly witness the execution of thematic learning and the integration of these disciplines. The study also incorporated a documentation technique, analysing teacher-prepared materials such as learning implementation plans (RPP), syllabi, and teaching resources to gain a further understanding of the integration process. Data analysis was conducted using an interactive inductive approach, encompassing stages of data reduction, data display, and conclusion drawing. To ensure the validity of the data, triangulation was employed by comparing findings from interviews, observations, and documentation. Furthermore, member checking was conducted by presenting the interview results to participants, thereby enhancing the accuracy and reliability of the information gathered.

Results and Discussion

Based on the analysis, the findings as follows: (a) integrations of general science and religious education within thematic learning; and (b) mediums of combination in thematic learning.

Integrations of general science and religious education within thematic learning

The findings indicate integrations of general science and religious education within thematic learning in elementary schools, facilitated through specific reasoning methods, include: (a) Bayani' reasoning: focuses on textual evidence; (b) Burhani's reasoning: emphasises empirical observation; and (c) Irfani's reasoning: pertains to intuitive understanding. This multifaceted approach not only enriches the educational experience but also fosters a deeper comprehension of the interconnectedness between scientific inquiry and religious principles, thereby enhancing students' overall learning outcomes.

(a) Bayani's reasoning: Focuses on textual evidence

The Qur'an and hadith serve as essential texts that guide the reasoning processes within the Bayani framework of learning, which represents a fundamental, text-based phase of knowledge acquisition. This pedagogical approach involves the deliberate incorporation of religious values into the curriculum, with a specific orientation towards monotheism. The integration of these religious principles exemplifies the Bayani

pattern, as educators incorporate qawliyyah verses from the Qur'an that highlight Allah's greatness in various subjects. Additionally, the learning process is consistently aligned with Rabbaniyah values, or divine principles, which manifest through various activities such as prayer, dhikr (remembrance of Allah), tadabbur al-Quran (reflection on the Qur'an), nature walks, and charitable donations. These activities are designed to foster a closer relationship between students and Allah as their Rabb, thereby enhancing their spiritual development and moral integrity, as noted in the observation of learning activities conducted in 2023 and articulated by Mr Bd (programme speaker and informant) during an interview session:

“[translated from Indonesian] At SDIT Alam Nurul Islam, the most emphasised teaching is the internalisation of Islamic values. Every subject instils values, with a particular focus on encouraging students to love Allah. Children's education ultimately leads to a deep love for Allah. We hope that inviting children to love their God will also increase their faith. Typically, we initiate this act of fostering a love for Allah at the start of the class; later, when the learning activity concludes, we refer to it as closing the class. In this class closure activity, we motivated the students. The motivation is sometimes told by prophets and messengers, companions, animals and influential figures who can motivate students to do good, such as honesty, responsibility, cooperation and so on.”

The observation reveals several instances of thematic learning that effectively integrate religious values into the educational framework. One notable example is found within the science curriculum, specifically under the theme "My Environment," which focuses on the transformation of solid objects into liquids. In this lesson, both students and teachers collaboratively engaged in the practical demonstration of this process by preparing es kopyor (iced coconut curd with pandan syrup). The learning activity was initiated by viewing a video that highlighted the Prophet's commendation of a stonemason for earning a halal livelihood, juxtaposed with a reprimand directed towards a beggar. This video conveys a significant message aimed at encouraging students to cultivate an independent character, discouraging reliance on begging while promoting the importance of self-sufficiency and income generation. Furthermore, the video incorporates relevant hadiths and verses from the Quran, thereby reinforcing the religious and ethical dimensions of the learning experience. The second theme, "My Family," addresses the roles and responsibilities of family members while seamlessly integrating religious values into the curriculum. A key component of this theme is the incorporation of verse 14 from Surah Luqman, which underscores the significance of treating parents with kindness and respect. This emphasis on familial duties is designed to instil a sense of moral responsibility among students, fostering an understanding of the ethical principles that govern familial relationships. This thematic approach not only aids in the comprehension of individual roles within the family unit but also reinforces the broader Islamic values that guide interpersonal conduct, as articulated by Mr Bd during the interview:

“[translated from Indonesian] Learning on the theme of my family, we include religious values by learning by doing. The child was asked to bring 2 kg of rice then the rice was carried for one day at school. After that, our child was invited to reflect and feel what was experienced when she was pregnant for 9 months and 10 days.

This is done so that children become more respectful and obedient to both parents. After that, on this theme, we also held an activity to entertain parents, where our parents invited to school and then the children gave the drink to their respective parents”.

The third theme, "My Body," for first-grade students, effectively integrates religious teachings with the exploration of human anatomy and physiology. The teacher contextualises this theme by referencing the Qur'anic verse, "Indeed, we have created man in the best possible form" (Surah Al-Tin, verse 4), to convey the notion that Allah has designed the human body with perfection, encompassing five senses-eyes, ears, nose, mouth, hands, and feet. In the instructional process, the teacher elucidates the positive functions of each sense, aligning these explanations with the student's learning outcomes. Furthermore, the teacher encourages students to express gratitude to Allah for the perfect design of their bodies, reinforcing this sentiment through discussions on the significance of using their senses responsibly. Emphasis is placed on the importance of listening before speaking, maintaining cleanliness and purity of the body, and taking responsibility for personal property. Additionally, the teacher draws upon the prophetic model to advocate for a healthy lifestyle, highlighting practices such as cleanliness, early rising, moderation in food intake, and the benefits of walking. The lesson culminates in an engaging activity where both students and teachers participate in cleaning exercises, thereby reinforcing the practical aspects of hygiene and cleanliness. The fourth theme, "Getting to Know My Surroundings," centres on the scientific exploration of plant structure and function, while integrating relevant Qur'anic verses to enrich the learning experience. Notably, the teacher references Surah al-An'am, verse 39, which underscores the significance of divine knowledge in the natural world, stating that not a leaf falls without Allah's awareness. This is complemented by verses from Surah al-Naba (verses 14-15) and Surah al-Nazi'at (verse 31), which articulate how seeds thrive through the rain that Allah provides. During the lesson, the teacher encourages students to reflect on the moral implications of these teachings, emphasising the necessity of gratitude towards Allah for creating plants with intricate structures that offer numerous benefits to humanity. The teacher further illustrates that all of Allah's creations serve a purpose, reinforcing the concept of gratitude through collective dhikr (remembrance of Allah). This practice serves to remind students of the importance of worship and the responsibility to care for plants in both school and home environments, thereby fostering a holistic understanding of their surroundings and the interconnectedness of faith and nature.

The fifth theme, "Leaders," for fourth-grade students, delves into the study of state institutions and central government organisations, including the roles of the president, vice president, and ministers. Within this framework, teachers integrate Islamic values to inform the selection of leaders following Islamic principles. Specifically, the Qur'anic verses from Surah al-Ma'idah verses 51 and 57, serve as reminders to believers regarding the importance of choosing leaders who align with their faith, cautioning against selecting leaders from Jewish or Christian backgrounds. Furthermore, the teacher elucidates the characteristics of effective leadership by referencing the exemplary leadership of the Prophet Muhammad and his companions, particularly Umar bin al-Khattab, who is noted for his embodiment of justice and firmness in governance. This thematic approach not only enhances students' understanding of political structures but also instils a sense of ethical responsibility in their perceptions of leadership.

(b) Burhani's reasoning: Emphasises empirical observation

Burhani pattern learning serves as a pivotal stage for the development and transformation of students, equipping them with essential skills. The objectives of this learning approach are designed to enhance students' reasoning abilities, fostering critical, creative, innovative, and productive thinking. The educational process is inherently contextual; it guides students through specific tasks while being grounded in kawaniyyah verses. This ensures that the learning experience transcends mere textual engagement, instead drawing heavily on the natural environment as both a medium and a source of knowledge. In this framework, students are encouraged to observe and investigate social and natural phenomena, thereby establishing a deeper connection with the world around them. Observations conducted within this learning paradigm indicate that educators effectively incorporate the surrounding natural environment as both an object of study and a learning space. This approach utilises experiential learning and learning-by-doing methodologies, allowing students to engage actively with their educational experiences. During outdoor class activities, students are given the opportunity to witness kawaniyyah verses in action, observing the signs of Allah's magnificence manifest in the universe through diverse elements such as flora, fauna, rivers, seas, biotic and abiotic ecosystems, alongside celestial bodies like the sun and the moon. This direct engagement with nature enriches the learning experience by embedding it in real-world contexts.

Furthermore, the integration of nature into the learning process transforms the school into a research-focused institution, where education extends beyond traditional classroom boundaries. This paradigm shift encourages students to conduct research in their natural surroundings, thereby stimulating curiosity and fostering a closer relationship with the environment. As students explore and interact with nature, they are liberated from constraints that may lead to dehumanisation, allowing for the cultivation of creativity and critical thinking. Ultimately, this holistic approach to education not only enhances academic learning but also nurtures well-rounded individuals who are more attuned to the complexities of the natural world. Experiential learning in natural environments is particularly advantageous for elementary school-aged children, who, during this critical stage of development, exhibit a strong inclination toward exploration, heightened curiosity, and physical activity. Engaging in outdoor learning not only stimulates intellectual growth but also fosters emotional and physical development, contributing to the formation of students with pious character, robust intellect, and effective leadership qualities. Moreover, this approach recognises and embraces the individuality of each student, allowing them to engage with the learning process in a manner that aligns with their unique capabilities and interests. By optimising the natural environment as a pedagogical resource, educators can effectively cultivate students' identities as al-'abd (servants of Allah) and al-khalifah (stewards of the earth), instilling a sense of moral integrity and responsibility within the framework of Islamic values. This holistic approach to education underscores the importance of integrating environmental experiences into the curriculum to shape well-rounded individuals.

The following examples highlight integrative thematic learning activities within the Burhani pattern. One prominent activity is associated with the "Animals" theme, wherein students engage in direct observation of Etawa goats at a facility in Turi Sleman. This experiential learning opportunity allows students to closely examine the

milk processing procedure and acquire knowledge related to the care and management of Etawa goats. During this activity, students learn proper milking techniques, emphasizing the importance of ensuring the production of high-quality milk. Subsequently, students practice individually, applying their knowledge by milking and feeding the goats, which reinforces their understanding through hands-on experience. The accompanying image (*Figure 2*) provides a visual documentation of the Burhani pattern learning activities, illustrating the effective integration of theoretical concepts with practical applications in the domain of animal husbandry. Within the thematic unit focused on "Plants," students engage in Burhani pattern learning activities that facilitate their understanding of the transformation of mung bean seeds into various food products. This experiential learning process allows students to observe firsthand the growth and development of these seeds, enhancing their comprehension of plant biology and food production. Additionally, students participate in an observational activity involving salak (snake fruit) plants in Turi Sleman. During this excursion, they gain insights into the care and maintenance of salak trees, the methods for producing high-quality fruit, and effective marketing strategies for these products. The manager of the salak plantation encourages student engagement by inviting them to ask direct questions, thus fostering an interactive learning environment. These learning activities are designed to ensure that students acquire knowledge directly from experts in the field, thereby enriching their educational experience and understanding of agricultural practices. The accompanying images (*Figure 3* and *Figure 4*) illustrate the Burhani pattern activities and the practical application of the concepts learned.



Figure 2. Visit to Etawa goat farm.



Figure 3. Visit to Bakpia food production.



Figure 4. Visit to Salak garden.

In the thematic unit titled "Getting to Know My Surroundings," fourth-grade students engage in learning activities structured around the Burhani pattern. During these activities, students work in groups to observe the ecological environment surrounding the mangrove forest, focusing on the identification of both biotic and abiotic components of the ecosystem. Subsequently, students are tasked with creating artistic representations of these ecosystems using naturally occurring materials such as leaves, wood branches, and snail shells. This hands-on approach not only enhances their understanding of the environment but also serves to instil a sense of environmental stewardship. Educators emphasise the importance of preserving the integrity of plant life by prohibiting the collection of leaves directly from the stems or the breaking of branches. Instead, students are encouraged to gather only fallen leaves or branches,

thereby promoting sustainable practices. The activities associated with the Burhani learning pattern are illustrated in the accompanying image (*Figure 5*), which showcases the integration of environmental awareness and creative expression within the educational framework.



Figure 5. Visit to mangrove forest.

(c) Irfani's reasoning: Pertains to intuitive understanding

The Irfani pattern of learning is characterised as a process that emphasises appreciation and awareness. This educational approach prioritizes habituation, encouraging students to pursue self-improvement and engage in service to others. Such practices are instrumental in preparing students to embody the roles of al-‘abd (servant of God) and al-khalifah (steward of the earth) within an Islamic framework. In the context of integrative thematic learning, educators play a pivotal role in instilling values that enhance the meaning and appreciation of learning experiences. This encompasses reflective practices and the conveyance of moral messages. Furthermore, teachers incorporate demonstration activities and project-based learning into the concluding phases of thematic units and outing classes, thereby enriching the educational experience. The following examples illustrate activities that effectively integrate general science and religious principles within the Irfani pattern of thematic learning. These activities not only promote academic knowledge but also foster ethical and moral development, aligning with the overarching goals of holistic education in an Islamic context. Within the thematic unit titled "My Family," students participate in Irfani pattern learning activities that emphasize the significance of familial interactions, such as sharing tea with their parents. During these activities, students assume the responsibility of serving food and beverages, which is designed to foster a sense of reverence and respect toward their parents, particularly their mothers. This practice reflects the concept of birr al-walidayn, which underscores the importance of honouring and valuing one's elders. The culmination of this theme is marked by a visit to a shelter house in the Sleman district, where students engage in philanthropic activities by distributing rice assistance to individuals in need. This initiative aims to familiarise

students with the concept and practice of infaq, which refers to charitable giving. Furthermore, students are encouraged to engage in additional infaq activities every Friday and over the weekends. Those students responsible for selling goods allocate a portion of the proceeds to a designated teacher for infaq purposes. The specific amount of infaq contributed is contingent upon the profits generated from these sales. The accompanying image (*Figure 6*) illustrates the learning activities associated with the Irfani pattern, highlighting the integration of family values and community service within the educational framework.



Figure 6. The activity of *Birr al-Walidayn*.

In the thematic unit titled "Getting to Know the Environment," students engage in learning activities aligned with the Irfani pattern, which includes cleaning up river debris as an expression of environmental stewardship. Beyond the structured learning sessions, environmental consciousness is fostered through communal activities. The school hosts a "mutual help day" under the theme "Nuriszero," signifying "Nurul Islam is clean." This initiative integrates environmental care into daily habits. Additionally, teacher meetings and parenting activities incorporate sustainable practices, such as encouraging participants to bring their containers for snacks. These practices are also emphasised during outing class activities and within the Nuriszero framework. The overarching goal of the Nuriszero program is to reduce waste accumulation, which poses threats to human well-being. This program underscores the critical role of educational institutions in cultivating sustainable environmental practices. In the thematic unit centred on "Animals," the Irfani pattern of learning facilitates group activities where students engage in the raising of rabbits. Each student is assigned specific responsibilities for the care and maintenance of the rabbit livestock. In instances where an animal's health deteriorates or it dies, this occurrence serves as a reflective learning opportunity. The primary objective of this activity is to cultivate a sense of empathy and affection for animals among the students. Subsequently, within the theme of "Plants," students participate in group gardening activities focused on cultivating vegetables. Each group is tasked with the responsibility of nurturing and sustaining the growth of the plants. The vegetables harvested from these efforts are then

prepared and shared as a communal meal. This initiative aims to encourage students to develop a preference for consuming vegetables while fostering a deeper appreciation for plant life. Collectively, these activities are designed to promote environmental awareness and instil values of responsibility and care in students.

Mediums of combination in thematic learning

Empirical data gathered from the field indicate that the integration of general science and religion within thematic learning at SDIT Alam Nurul Islam Sleman occurs across distinct mediums of combination which facilitate a holistic educational experience that harmoniously merges scientific and religious perspectives. This study provides a detailed explanation of distinct mediums of combination in thematic learning: (a) integration of the material domain; (b) integration of the methodological domain; (c) integration of the educational domain; (d) integration of the environmental domain; and (e) integration of the evaluational domain.

(a) Integration of the material domain

In this context, educators integrate general education and religious teachings into a cohesive curriculum that is consistently aligned with the principles of Islamic teachings and values. This approach seeks to mitigate the dichotomy that has historically existed between general science and religion, which can lead to issues such as split personality in students. According to a teacher at the school, the integration of material content aims to eliminate the perceived separation between these two domains, as both stem from a singular source, namely Allah SWT, thereby reinforcing faith and piety. By incorporating religious values into general subjects, the curriculum enhances the applicability of religious teachings, allowing students to recognise the omnipresence of religion in their daily lives. This integration serves as a vital mechanism for guiding students' activities, ensuring that they remain connected to moral values throughout their educational journey.

(b) Integration of the methodological domain

In this educational context, schools endeavour to implement diverse and dynamic learning methods by utilising a broad range of flexible learning resources. The term "flexible" denotes an approach that is not rigid; thus, learning resources extend beyond traditional teachers to include libraries, the internet, community resources, and the natural environment, all serving as valuable tools for student engagement. The primary objective of this methodological combination is to optimise cognitive, affective, and psychomotor development simultaneously. Various instructional methods are employed throughout the thematic learning process, including activities for initiating and concluding themes, as well as class openings and closures. For instance, theme-opening activities incorporate methods such as role-playing, demonstrations, adventures, and simulations, while theme-closing activities utilise project presentations. Class-opening sessions employ lectures, dialogues, storytelling, discussions, and assignments, whereas class-closing activities often involve feedback and advice. Additionally, outing activities are facilitated through visits or tours, further enriching the learning experience and ensuring that students engage with the material in a meaningful and integrated manner.

(c) Integration of the educational domain

Within this educational framework, three primary domains are identified: aqliyyah (knowledge), ruhiyyah (faith), and jasadiyyah (physical), with the integration of these aspects evident in various learning activities. The development of the aqliyyah domain is facilitated through both classroom instruction and experiential learning outside the classroom. In the classroom, students engage with diverse subjects, while outside, they pursue knowledge through assigned tasks such as internet research, library visits, observations, and interviews with experts. Outing activities, which include field trips, aim to stimulate students' curiosity about the natural world and bridge theoretical knowledge with practical applications that may not be available within the school environment. Additional initiatives to enhance the aqliyyah aspect include activities such as selling, conducting simple research, writing, and participating in literature competitions. The ruhiyyah aspect is nurtured through practices such as beginning classes with ablution, performing dhuha prayers, and engaging in morning dhikr, which includes reciting al-Ma'surat and reflecting on natural phenomena as manifestations of divine power. This reflection reinforces students' understanding of Allah's greatness and encourages gratitude. Furthermore, the jasadiyyah aspect is developed through physical activities, including weekly exercises and environmental stewardship initiatives, such as cleaning local areas and caring for plants. These integrated efforts across the three domains-aqliyyah, ruhiyyah, and jasadiyyah-aim to cultivate well-rounded individuals who embody knowledge, faith, and physical actions, ultimately fostering a sense of pride in their identity as Muslims.

(d) Integration of the environmental domain

In the context of thematic learning, the integration of four educational environments-namely school, family, community, and mosque education-serves to synergise the roles of teachers, parents, and the community in fostering the competencies and character development of students. This multifaceted approach recognises that the educational environment profoundly influences student outcomes. Firstly, family education is foundational, as formal educational institutions operate as a subsystems within the broader framework of family education, which is the primary institution for nurturing students' competencies and character. Thus, active parental involvement is essential, fostering collaboration between home and school to cultivate well-rounded individuals characterised by knowledge, faith, and physical activities of charity. To further this integration, schools organise monthly parenting programmes in collaboration with experts in education, health, psychology, and religion, aimed at aligning educational strategies between home and school. Observations of these parenting activities reveal a high level of parental engagement, as evidenced by robust attendance, highlighting the community's commitment to supporting the educational process. The following section includes a visual representation of these parenting activities (*Figure 7*).



Figure 7. Parenting activities.

Secondly, the integration of community education is evident through classroom outing learning activities that engage both local and more distant community environments. The immediate community serves as the primary reference point for exploration, as it is essential for students to understand their living context and to recognise the potential resources and opportunities available in their surroundings. This experiential learning approach not only enhances students' awareness of their immediate environment but also fosters a sense of belonging and responsibility towards their community. This perspective is supported by insights from a parent associated with the school, who emphasised the importance of children mastering the knowledge and skills relevant to their local context:

“[translated from Indonesian] At SDIT Alam Nurul Islam, in addition to integrating Islamic values into the curriculum, it also integrates the community environment. where the community environment is used as a source of learning. The main thing is the immediate community environment. For example, around the school, there are cow stables, buffaloes, rivers and workshops, so this is what children must master first. If the nearest environment is no longer possible, in the sense that it has been visited by all, then the community environment is far away from the target of the next learning activity”.

Additional efforts to integrate the community environment beyond formal learning activities are manifested through various initiatives, including mosque management, i’tikaf, eid al-Qurban, and social service projects. During the Eid al-Qurban, students actively participate alongside community members in the slaughtering and distribution of sacrificial meat, fostering a sense of communal responsibility and engagement. Furthermore, social service activities involve students visiting orphanages and other communities in need, reinforcing their connection to social welfare. The mosque environment plays a crucial role in Integrated Islamic Schools (SIT), serving not only as a physical infrastructure standard but also as an integral component of the educational framework. In every Integrated Islamic school, including SDIT Alam Nurul Islam, the

mosque functions as a primary learning centre, facilitating both worship and educational activities. This reflects the historical significance of the mosque as the first communal structure established during the hijrah, thereby emphasising that academic pursuits and knowledge acquisition should be anchored in and reflective of the Islamic faith.

(e) Integration of the evaluational domain

At SDIT Alam Nurul Islam, evaluation activities are conducted comprehensively through authentic assessments that encompass three key domains: cognitive, affective, and psychomotor. Cognitive assessments are administered in written form, utilising various question types such as multiple-choice, short descriptions, and essays. Affective assessments are approached through non-test methods, primarily involving the observation of student attitudes both in and out of the classroom, facilitated by observation sheets and mutaba'ah (monitoring). For psychomotor evaluations, students are assessed through portfolios, performances, and project work. The integration of general science and religious education within thematic learning is evident across five domains. Firstly, in the material realm, teachers blend general education with religious teachings, ensuring that the curriculum is rooted in Islamic values. Secondly, in the realm of methods, schools employ diverse and flexible learning strategies to enhance educational engagement. Thirdly, the educational framework encompasses three dimensions: aqliyyah (knowledge), ruhiyyah (faith), and jasadiyyah (physical). Fourthly, the learning environment integrates four key contexts: school, family, community, and mosque, fostering a holistic educational experience. Finally, the evaluation realm employs authentic assessments that comprehensively address cognitive, affective, and psychomotor domains, thereby ensuring a well-rounded approach to student development.

The integration of general sciences and religion through thematic learning constitutes a significant pedagogical approach aimed at harmonising scientific inquiry with spiritual understanding. This integration is particularly pertinent in educational contexts that prioritise both scientific literacy and religious values, as it fosters a comprehensive educational experience. The thematic learning model facilitates this integration by enabling educators to design curricula that encompass both domains, thereby promoting a holistic understanding of knowledge that transcends disciplinary boundaries. Such an approach not only enhances students' cognitive abilities but also nurtures their moral and ethical development, aligning with the notion that education should cultivate both intellectual and spiritual growth. A foundational concept underpinning the integration of general sciences and religion is wahdah al-'ulum, or the unity of sciences, which asserts that all knowledge, encompassing both scientific and religious domains, originates from a singular divine source. This perspective advocates for the development of curricula that interconnect scientific theories with religious teachings, thereby enriching the educational framework for students. Research indicates that such integration can significantly enhance students' comprehension of both fields, as it enables them to discern the connections between empirical evidence and spiritual beliefs, fostering a more cohesive understanding of their educational experiences (Syukri et al., 2023; Mahmudi et al., 2022; Ningsih et al., 2022; Ruswandi et al., 2022). This holistic approach not only promotes intellectual growth but also nurtures moral and ethical development, aligning educational practices with a comprehensive worldview that values both scientific inquiry and spiritual insight.

The thematic approach to education is particularly effective in this context as it emphasises interdisciplinary learning, allowing educators to merge scientific material with religious principles to create a more engaging and relevant learning environment. This pedagogical strategy not only aids in the comprehension of complex scientific concepts but also instils moral and ethical values derived from religious teachings, thereby enriching the educational experience (Harfiani and Dessty, 2023; Purwati et al., 2023). For instance, studies have demonstrated that thematic learning enables students to relate scientific concepts to real-life situations, making the learning process more meaningful and impactful. This connection between theoretical knowledge and practical application fosters deeper understanding and retention of information, ultimately enhancing students' overall educational outcomes (Mariadi, 2023; Yanti, 2023). Moreover, the integration of science and religion through thematic learning can effectively address contemporary challenges in education, particularly the perceived conflict between scientific and religious worldviews. Research indicates that students often compartmentalise their understanding of science and religion, which can lead to confusion and conflict regarding their beliefs (Timilsena and Devkota, 2022; Taber et al., 2011). By fostering an educational environment that encourages dialogue between these two domains, educators can assist students in developing a more cohesive understanding of their world, which is essential in today's increasingly complex society. This integrative approach not only promotes critical thinking but also helps students reconcile differing perspectives, thereby enhancing their overall educational experience and preparing them to navigate the multifaceted nature of contemporary life (Woolley, 2024; Billingsley et al., 2014). In practical terms, the implementation of an integrated curriculum necessitates that teachers possess a robust understanding of both scientific and religious content. Consequently, professional development programmes designed to equip educators with the requisite skills for teaching this integrated curriculum are essential. Such programmes can significantly enhance teachers' confidence in addressing topics that bridge science and religion, ultimately benefiting student learning outcomes (Imaduddin, 2020; Widiyatmoko, 2016). Furthermore, the curriculum should be thoughtfully designed to reflect the diverse cultural and religious backgrounds of students, ensuring that all perspectives are respected and included. This inclusivity not only fosters a sense of belonging among students but also enriches the learning experience by acknowledging and valuing the varied contexts from which students come (Suyadi et al., 2021; De Carvalho, 2016). By prioritising both teacher preparedness and curriculum inclusivity, educational institutions can create a more effective and harmonious learning environment that supports the holistic development of all students.

Conclusion

In conclusion, the integration of general sciences and religion through thematic learning at SDIT Alam Nurul Islam represents a promising avenue for enriching education via the integrative sciences of Bayani, Burhani, and Irfani. By fostering connections between scientific inquiry and spiritual understanding, educators can cultivate a more holistic learning experience that equips students to navigate the complexities of modern life. This integrative approach not only enhances academic achievement but also promotes ethical and moral development, thereby aligning with the broader educational goals within a diverse society. Such a framework is vital in

preparing students to engage thoughtfully with the multifaceted challenges they will encounter, ultimately contributing to their overall growth as informed and responsible individuals. To further advance this field of study, future research should focus on several key areas. Firstly, longitudinal studies could be conducted to assess the long-term impacts of integrated curricula on students' academic performance and moral development. Additionally, comparative studies between different educational institutions employing similar integrative approaches could provide valuable insights into best practices and potential challenges. Furthermore, exploring the perspectives of students, parents, and educators regarding the integration of science and religion could enrich the understanding of its effectiveness and acceptance within diverse cultural contexts. Finally, investigating the role of professional development programmes in equipping teachers to effectively deliver integrated curricula would be essential in ensuring the sustainability and success of such educational initiatives.

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Conflict of interest

The authors confirm that there is no conflict of interest involved with any parties in this research study.

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