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Strategic Steps for Integrating Religious and Scientific Education in the Context of Learning Material Comprehension for Senior High School Students in Batam

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A B S T R A C T

The separation between religious and scientific education in traditional systems often creates a dualism in shaping students' character, leading to an imbalance between intellectual and spiritual intelligence. To address the increasingly complex challenges of modern education, an integration of both fields is essential to build a holistic and relevant educational system. This study aims to describe the concept of integrating religious and scientific education, its implementation steps in the learning process, and its relevance to contemporary educational challenges, particularly for senior high school students in Batam City. This research uses a literature review method by examining various scholarly sources. The results indicate that integration can be carried out through strategic approaches, such as using the Qur'an as a source of learning, eliminating the dichotomy of knowledge, and developing a curriculum based on Islamic values and modern science. This integration fosters the character of Ulil Albab—individuals who balance reason and faith. Practically, it requires teaching strategies that unify moral and scientific dimensions, while strengthening the foundation of Islamic educational curriculum development that aligns with the needs and characteristics of high school students in Batam

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INTRODUCTION

The integration of religious and scientific knowledge in education has long been a subject of concern, arising from the awareness of the strategic role educational institutions play in addressing human challenges and contemporary developments. This integration aims to align Islamic religious education with science and technology to improve the quality of learning and character development. Religious education is not only about theological teachings but also about instilling Islamic values that are relevant in social life. However, its implementation still faces various obstacles that require sustainable solutions for effective integration. (Chanifudin & Tuti Nuriyati, 2020) The integration of religion and science is a key element in modern educational reform. Historically, these fields have been separated, resulting in a dualistic learning process. Consequently, students often develop in a fragmented manner—intellectually strong but morally weak, or vice versa. An integrative approach is needed to cultivate individuals who are balanced in both reason and ethics. The term "integration" comes from the word "integer," meaning whole or complete, reflecting a harmonious and balanced state both morally and intellectually. Integration is also associated with values of honesty and commitment to truth. (Fachrudin, 2015)

In the academic context, integration refers to the unification of disciplines without separation. In education, this means merging Islamic values with modern science to form a comprehensive and contextual understanding of reality.(Iwan Sanusi, 2021) Islamic religious education aims to develop critical and analytical thinking skills, encouraging students to relate Qur'anic verses and Hadith to present-day realities. (Firmansyah, M., 2023)

In Indonesian, "science" is often equated with natural sciences, which study natural phenomena and processes. The term originates from "natural science," where "natural" refers to nature, and "science" means knowledge.(Patta Bundu, 2016) The concept of integrating religion and science emphasizes the complementary roles of knowledge and religious values. Science explains the physical world, while religion provides moral and spiritual guidance in navigating reality.(Meliani et al., 2021) This integration seeks to align scientific knowledge with moral and spiritual values, which is crucial in shaping individuals who are intellectually capable and ethically grounded.(Komariah Suwito et al., 2024) In the scientific context, integration entails merging two or more fields of knowledge into a unified whole. In education, this means connecting Islamic values with modern science to eliminate dichotomy and develop a comprehensive and relevant understanding of life. (Iwan Sanusi, 2021).

LITERATURE RIVIEW

The purpose of this study is to describe the concept of integrating religious and scientific education from an academic perspective, to identify and explain practical steps of integration in understanding learning materials, and to analyze its relevance in addressing contemporary educational challenges, particularly for senior high school students in Batam.

METHODOLOGY

This study employs a library research approach. (Kurniati, P., 2021) This method is used to examine the steps involved in integrating religious education with science in the context of understanding learning materials. The analysis is conducted by interpreting and critically reviewing relevant theories. (Kurniati, P., 2022) Data sources are obtained from books, academic journals, and other references related to the research topic. (Putra, H. M., et al., 2022).

RESULT AND DISCUSSION

The integration of knowledge is a strategic approach aimed at connecting Islamic teachings with scientific disciplines in Islamic education. Its purpose is to create a synergy between religious values and empirical knowledge, fostering a comprehensive understanding in the learning process. In practice, the integration of religious and scientific knowledge can be carried out through several steps (Imam Suprayogo, 2006). First, the Qur'an should serve as the primary source of learning. Second, the scope of Islamic studies should be broadened without compartmentalizing knowledge. Third, it is essential to cultivate individuals with the qualities of Ulil Albab—those who are intellectually and spiritually intelligent. Fourth, examining Qur'anic verses related to science becomes crucial to establish a connection between revelation and scientific knowledge. In addition, curriculum development that integrates Islamic values with modern scientific knowledge in educational institutions is a strategic step toward fostering holistic education.

Strategic steps to integrate religious education and science in the classroom can be implemented through several practical approaches that link Islamic teachings with scientific concepts. For example, one approach is using the Qur'an as the main source of learning. In integrating science and the Qur'an within a lesson on photosynthesis, Surah Yasin verse 80 is often referenced: “He who produces for you fire from the green tree, then behold! You kindle from it.” This verse metaphorically aligns with the scientific process of photosynthesis, in which green plants utilize sunlight to produce food through chlorophyll—a substance also contributing to wood formation. This wood is later used by humans as fuel, linking plant biology to its practical benefits in human life, as explained scientifically (Nora J D. Rosadi & Lukman N H, 2023). This approach enables students to connect technical scientific knowledge with religious values, enriching their spiritual insight.

Another method involves expanding Islamic studies beyond disciplinary dichotomies. In a biology lesson on the human circulatory system, teachers can relate scientific understanding with Islamic perspectives on the human body as a perfect creation of Allah. Surah Al-Mu’minun verses 13–14 describe the detailed stages of human development, closely mirroring embryological stages studied in biology. Similarly, Surah Al-Insan verse 2 mentions that humans are created from a mixed drop of sperm, aligning with the scientific concept of fertilization and genetic inheritance. Islamic scholars interpret this "mixture" as containing both physical and character traits from both parents, creating a

meeting point between revelation and science in understanding human origin holistically (Robiatul Adawiyah Binti Mohd et al., 2022; Zainul Wailissa, 2022).

Fostering the Ulil Albab character—intellectual and spiritual intelligence—is another important aspect. In physics, when teaching about the law of gravity, the Qur'an can be used to help students understand Allah's greatness in establishing the laws of nature. For instance, the phenomena of day and night, which are scientifically caused by Earth's rotation and the sun's position, are also mentioned in the Qur'an. Surah Al-Anbiya verse 33 and Surah Az-Zumar verse 5 illustrate the orderly movement of celestial bodies, in line with scientific principles (Nur Atika et al., 2022). This approach encourages students to develop critical thinking grounded in faith, prompting reflection on Allah's power in designing the universe. The Ulil Albab character emerges from the harmony of critical reasoning and spiritual contemplation based on faith. This educational model aligns with M. Amin Abdullah's integrative-interconnective approach, which unifies intellect, heart, and faith to shape a holistic human being (Abdullah, M.A., 2006)..

Exploring Qur'anic verses related to science is another important strategy. In Qur'an-based Natural Sciences (IPA) instruction, scientific concepts are connected with ayah kauniyah—verses that reflect Allah's power through natural phenomena. For instance, in studying the water cycle, Surah Az-Zumar verse 21 describes natural processes aligned with scientific explanations. This integration not only helps students grasp scientific concepts but also strengthens their faith. Research at MAN 3 Central Jakarta shows that Qur'an-based science learning incorporates discussions, experiments, and the merging of scientific material with Qur'anic verses, aiming to deepen both scientific understanding and spiritual awareness (Andi Nurlaela, 2025)

Finally, developing an integrated curriculum that merges Islamic values with modern science is a strategic approach. For instance, in science subjects, teachers can embed topics that relate scientific knowledge to Islamic values. In lessons on climate and weather changes, students can explore Qur'anic concepts about the orderly creation of the heavens and the earth. This connection helps raise awareness of environmental issues from a spiritual perspective, making learning more contextual and inspiring a religious sense of responsibility toward God's creation. Many modern scientific facts were mentioned in the Qur'an long before being discovered by science, affirming the Qur'an's continued relevance to scientific advancement (Yahya, H., 2003). Thus, exploring verses related to science is a strategic step in developing a curriculum that integrates religion and science—positioning the Qur'an as a central, holistic, and transformative source of knowledge (Nasution, H., 2001).

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that integrating religious education and science is essential in developing a comprehensive and balanced educational model that incorporates both rational and spiritual dimensions in the learning process. The concept of integration between religion and science in education centers on a strategic approach that links Islamic teachings with scientific knowledge, aiming to establish a synergy between religious values and empirical understanding. This approach is expected to foster a more holistic comprehension that unites the technical aspects of science with the spiritual insights of religion.

In practice, this integration can be implemented through tangible steps, such as using the Qur'an as a primary source of learning, expanding the scope of study without creating a dichotomy between disciplines, nurturing the Ulil Albab character—one that is intellectually and spiritually grounded—and designing curricula that align Islamic values with modern scientific knowledge. The relevance of this integration is particularly significant in addressing contemporary educational challenges by offering a more contextual and meaningful approach for senior high school students in Batam City. It not only connects scientific knowledge with moral and religious values but also deepens students' understanding of natural phenomena while strengthening their faith and spiritual maturity.

The practical implication of this research is the importance of implementing the integration of religion and science in teaching to create a more holistic educational model—one that connects scientific knowledge with moral and spiritual values. For SMA students across Batam, this integration has the potential to enrich learning outcomes, enhance their religious consciousness, and shape individuals who are intellectually sharp and spiritually strong. Theoretically, this study contributes to the growing body of literature on the integration of religious and scientific education. It provides a conceptual foundation for the development of a more comprehensive curriculum and reinforces the significance of integrative approaches in education to nurture balanced individuals, both in reasoning and in faith

FURTHER STUDY

This research still has delays, so further research is needed regarding the topic of Strategic Steps for Integrating Religious and Scientific Education in the Context of Learning Material Comprehension for Senior High School Students in Batam in order to enhance this research and provide additional insights for the readers.

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