

Integrating Qur'anic and Science-Technology Education for Strengthening Students' Character and Supporting Citizenship Education

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Abstract: This study examines the integration of Qur'anic values and science and technology education as an educational model for strengthening students' character and supporting citizenship education in the twenty-first century. The rapid development of science and technology presents both opportunities and challenges, making it important to balance intellectual advancement with moral and spiritual values in education. This study employed a literature review method by analyzing 15 articles related to Qur'anic education, character education, citizenship education, and science and technology education. The data were analyzed through the processes of identification, selection, classification, and synthesis of relevant literature. The findings show that Qur'anic education helps develop religious values, morality, discipline, responsibility, honesty, and integrity among students. At the same time, science and technology education supports the development of critical thinking, creativity, problem-solving skills, digital literacy, and adaptability to social change. The findings also show that the two approaches can complement each other, as Qur'anic education provides moral guidance while science and technology education helps students develop the knowledge and skills needed in the modern era. Their integration can strengthen students' character and support the goals of citizenship education by preparing students to become responsible, ethical, knowledgeable, and globally competitive citizens.

Keywords: qur'anic education; science and technology education; character education; citizenship education; literature review.

INTRODUCTION

Education is not just aimed at improving students' academic abilities, but also at shaping good character so they can face various life challenges Hamdi et al. (2024). In this era of rapidly advancing science and technology, students are expected to have various skills that support their success in the future (Fathatul Khoiriyah et al. 2026). However, technological advancements also bring various impacts that need to be watched out for, such as a decline in concern for moral values, misuse of digital technology, and a decrease in social responsibility. This situation shows that strengthening character is very important in the education process so that students are not only intellectually smart but also have good attitudes and behavior.

One way to strengthen students' character is through Qur'anic education. Qur'anic education teaches various values that can be applied in everyday life, such as honesty, discipline, responsibility, teamwork, and care for others. These values not only help students understand religious teachings but also guide them in how to behave and act (Utami & Fathoni 2022). Therefore, Qur'anic education plays an important role in shaping students' character so that they have good morals and can become responsible individuals.

Qur'anic education and science and technology education actually have complementary goals. Qur'anic education focuses on shaping values and character, while science and technology education focuses on developing knowledge and skills. If these two approaches are integrated, students will not only have good academic abilities but also a strong moral foundation in using science and technology. This integration also aligns with the goals of civic education, which aims to shape citizens who are smart, responsible, and able to actively participate in community, national, and state life.

Various studies have discussed Qur'anic education, character education, citizenship education, as well as science and technology education. However, most of these studies still examine these aspects separately. Research on Qur'anic education generally focuses on the development of religious values

and character, while studies on science and technology education mostly discuss the development of twenty-first-century competencies. On the other hand, studies on citizenship education tend to emphasize the development of democratic, responsible, and socially aware citizens Mahardhani (2020). Research that connects Qur'anic education and science and technology education in strengthening students' character and supporting citizenship education is still limited. Therefore, this study aims to bring these aspects together and provide a more integrated understanding of their relationship.

Previous studies have shown that Qur'anic education can contribute to the development of values such as honesty, discipline, and responsibility. Hamdi et al. (2024) Meanwhile, science and technology education can help students develop critical thinking, creativity, and problem-solving skills needed in the twenty-first century. Meanwhile, Muti'ah Nuha Mumtazah (2025) These findings show that both areas have important contributions to students' development. However, they are still often discussed separately.

This study therefore does not only describe the role of Qur'anic education and science and technology education, but also examines how the two can complement each other in the learning process. Based on the literature reviewed, this study proposes an integrated model in which Qur'anic values provide a moral foundation, while science and technology education supports the development of students' knowledge and skills. The integration of these two aspects is expected to strengthen students' character and support the development of responsible and ethical citizens.

METHODS

This study uses a literature review method to examine various studies related to Qur'anic education, science and technology education (Sainstek), student character development, and citizenship education. This method was used because it allows the researchers to understand and connect findings from previous studies related to these topics.

A total of 15 articles were used in this study. The articles were selected based on their relevance to the focus of the study, namely Qur'anic education, character education, science and technology education, and citizenship education. The literature was obtained from relevant scientific sources and identified using keywords related to Qur'anic education, character education, civic education, science and technology, and educational integration.

The selection process was carried out in several stages. First, the researchers identified articles related to the main topics of the study. Second, the articles were reviewed based on their titles and content to determine their relevance. Articles that did not discuss Qur'anic education, science and technology education, character development, or citizenship education were not included. Articles that provided findings relevant to the relationship between these topics were selected for further analysis.

After the selection process, the 15 selected articles were grouped into four main themes. The first theme discusses the role of Qur'anic education in strengthening students' character. The second focuses on the contribution of science and technology education to the development of students' knowledge and skills. The third examines the integration of Qur'anic values and science and technology in the learning process. The fourth discusses the relevance of this integration to citizenship education.

The data were analyzed through the processes of identification, selection, classification, and synthesis. The findings from the selected articles were compared to identify similarities, differences, and relationships between the four themes. The results were then synthesized to understand how Qur'anic values can provide moral guidance while science and technology education helps students develop the knowledge and skills needed in the modern era. Based on this analysis, the study presents an integrated model that connects Qur'anic values, science and technology competencies, character development, and citizenship education.

RESULTS AND DISCUSSION

The Role of Quranic Education in Strengthening Students' Character

Literature review results show that Quranic education plays an important role in shaping students' character. The values contained in the Qur'an, such as honesty, discipline, responsibility, trustworthiness, teamwork, and social care, serve as a foundation for fostering positive behavior.

Quranic education is not only focused on mastering religious knowledge but also emphasizes the process of internalizing values so they can be applied in daily life. Through learning the Qur'an, practicing worship regularly, and following the examples set by teachers and the school environment, students are guided to develop a character that aligns with moral and spiritual values (Nurjannah et al. 2024).

Various studies show that Quran-based education can serve as a foundation in shaping noble morals and the character of students. The Qur'anic values instilled consistently can help students develop a positive attitude in interacting with themselves, their surroundings, and society (Ramatni et al. 2025). In the digital era marked by various moral challenges, Qur'anic education also serves as a guide in filtering information and directing students to use technology responsibly (Fathatul Khoiriyah et al. 2026).

Thus, Qur'anic education doesn't just serve as a way to learn religion, but also as an important tool in shaping students' character to be honest, responsible, and morally aware (Aldi 2023).

The Contribution of Science and Technology Education in Developing Student Competence and Character

Based on the study results, science and technology education (Sainstek) plays a big role in developing the skills needed in the 21st century. These skills include critical thinking, creativity, communication, collaboration, problem-solving, and digital literacy. Learning based on science and technology gives students the chance to understand various phenomena scientifically while also building their ability to use technology effectively (Le Xuan Quang 2015).

The rapid development of technology demands that students be able to adapt to changes happening in various aspects of life. That's why Sainstek education doesn't just aim to improve knowledge, but also equips students with the skills needed to face global challenges. Project-based learning, experiments, and the use of digital technology have been proven to enhance students' analytical abilities, decision-making, and problem-solving skills.

Even so, technological developments also bring various challenges, like the spread of irresponsible information, cyberbullying, and misuse of digital media. This situation shows that mastering technology needs to be balanced with strengthening character and ethical values so that learners can use technology wisely and responsibly (Erni Yusnita 2025).

Integration of Qur'anic Education and Science & Technology in Strengthening Student Character

The literature review shows that Qur'anic education and science-tech education complement each other. Qur'anic education serves as a source of values that shape students' character and morals, while science-tech education helps develop knowledge, skills, and higher-order thinking abilities. Combining both approaches can create a more holistic learning process because it balances spiritual, intellectual, social, and technological aspects (Iis Humaeroh et al. 2025).

This idea of integration comes from the view that science and technology shouldn't be separated from religious values. From an Islamic education perspective, qauliyah verses (revelations) and kauniyah verses (natural phenomena) are two learning sources that support each other in understanding life. So, students are not just encouraged to master science and technology, but also to understand the moral values underlying their use (Wakit et al. 2025).

The integration of Qur'anic education and science-tech can be carried out through contextual learning, project-based learning, strengthening value-based digital literacy, and developing a school culture that supports the ethical use of technology. Through this approach, students are expected to be able to develop their academic skills while also building strong character to face various life challenges. The Relevance of Integrating Qur'anic and Science-Technology Education with Civic Education.

Civic education aims to shape citizens who are smart, responsible, democratic, and have good character. Studies show that integrating Qur'anic and science-technology education is highly relevant to these goals. Qur'anic values provide a moral and ethical foundation for community life (Solekha & Suyatno 2021). Meanwhile, Sainstek education helps students build critical thinking skills and digital literacy needed for life in a democracy.

In the digital era, citizens are not only expected to understand their rights and responsibilities, but also to be able to use technology responsibly. Digital literacy supported by moral and spiritual values will help learners to critically respond to various information, avoid misuse of technology, and participate

positively in social life. Therefore, The integration of Qur'anic education and science and technology can support the development of citizens who are both intellectually smart and have good character.

Besides that, citizenship education supported by Qur'anic values can strengthen attitudes of tolerance, social responsibility, care for others, and commitment to national values. Meanwhile, mastery of science and technology allows students to actively contribute to solving various problems faced by society (Fadlillah et al. 2025).

Conceptual Model of Qur'anic and Science-Technology Education in Supporting Civic Education

Based on the results of synthesizing the selected literature, the Qur'anic and Sainstek education model can be understood as an approach that connects values, competencies, character, and citizenship. Qur'anic education provides a moral foundation through values such as honesty, discipline, responsibility, trustworthiness, and social care. Meanwhile, Sainstek education helps students develop important competencies, including critical thinking, creativity, problem-solving, collaboration, and digital literacy (Arsyad & Fitroh 2025). These two aspects can be connected through learning activities that allow students to develop their knowledge and skills while applying moral values in real situations.

Through this model, Qur'anic values can guide students when they use technology, solve problems, work with others, and make decisions. At the same time, science and technology education provides practical opportunities for students to apply these values. This process is expected to strengthen students' character through the development of honesty, responsibility, discipline, social awareness, critical thinking, and responsible use of technology. These character outcomes can then support the goals of citizenship education by preparing students to become responsible, ethical, critical, and active citizens. In this way, the model creates a connection between Qur'anic values and science and technology competencies, which are integrated through the learning process to strengthen character and support citizenship education.

The results of this study show that the integration of Qur'anic education and science and technology has great potential to be applied at various levels of education. This approach can be one of the alternatives in addressing the challenges of education in the modern era, which require a balance between mastery of knowledge and character building.

Therefore, schools need to develop curricula, learning strategies, and a school culture that support the integration of Qur'anic values with the development of science and technology (Mutiah Nuha Mumtazah 2025). With an integrated approach, education is expected to produce a generation that is characterful, competent, able to adapt to the times, and responsible as good citizens.

CONCLUSION

Based on the results of the literature review, it can be concluded that Qur'anic education and science and technology education (Sainstek) have complementary roles in strengthening students' character. Qur'anic education contributes to instilling moral and spiritual values, such as honesty, discipline, responsibility, and social care. Meanwhile, Sainstek education helps students develop various competencies needed in the 21st century, such as critical thinking, creativity, problem-solving, and digital literacy. The study also shows that integrating Qur'anic education with science and technology can create an educational model that balances character development and mastery of knowledge and technology. Through this approach, students not only gain strong academic skills but also a solid moral foundation to use science and technology responsibly. In addition, the integration of Qur'anic education and science and technology has a strong relevance to the goals of civic education, which is to shape citizens who are smart, have good character, and are responsible. Therefore, combining these two approaches can be an alternative in addressing educational challenges in the modern era. Schools and educators are expected to develop learning that blends Qur'anic values with the advancement of science and technology so that it can produce a generation with noble morals, competence, and the ability to contribute positively to society, the nation, and the country.

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