PROSIDING KONFERENSI INTEGRASI INTERKONEKSI ISLAM DAN SAINS
P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

ISLAMIC RELIGIOUS EDUCATION LEARNING DESIGN (Interconnective Integration Of Islam And Science In Developing Graduate Competencies)

Hosaini[1], Kojin[2] Mujamil Qomar[3]
[1]Program Studi, Studi Islam (SI) Pascasarjana Program Doktoral Universitas Islam Negeri Sayyid Ali Rahmatullah Tulungagung, Jl Kota Tulungagung, Jawa Timur
[2,3] Universitas Islam Negeri Sayyid Ali Rahmatullah Tulungagung, Jl Kota Tulungagung, Jawa Timur

Email: [1]hosaini2612@gmail.com , [2]Mujamil65@yahoo.com, [3]kojinmashudi@69@gmail.com

Abstrak. Penelitian ini bertujuan untuk mengembangkan desain pembelajaran Pendidikan Agama Islam (PAI) berbasis integrasi interkoneksi antara Islam dan sains guna meningkatkan kompetensi lulusan. Fokus penelitian ini mencakup empat aspek utama: (a) penguatan kompetensi religius, (b) pengembangan kompetensi ilmiah, (c) integrasi pengetahuan dan etika, serta (d) kesiapan global. Metode yang digunakan adalah Systematic Literature Review (SLR), dengan mengkaji berbagai penelitian relevan dari sepuluh tahun terakhir terkait pembelajaran integratif dalam pendidikan Islam. Hasil penelitian menunjukkan bahwa penguatan kompetensi religius dapat membentuk karakter spiritual yang kokoh, sementara pengembangan kompetensi ilmiah memperkuat keterampilan berpikir kritis dan rasional. Integrasi pengetahuan dan etika menegaskan pentingnya keterkaitan antara pengetahuan akademik dan moral, yang menghasilkan lulusan berpengetahuan luas namun tetap beretika. Selain itu, kesiapan global melalui penguasaan keterampilan kolaborasi, komunikasi, dan inovasi berbasis nilai-nilai Islam menjadi penting untuk menghadapi tantangan globalisasi. Kesimpulannya, desain pembelajaran PAI yang mengintegrasikan Islam dan sains efektif dalam menghasilkan lulusan yang religius, cerdas secara ilmiah, bermoral, dan siap bersaing di tingkat global.

Kata kunci: *Pendidikan Agama Islam, integrasi Islam dan ilmu pengetahuan, kompetensi lulusan*

Abstract. *This research aims to develop an Islamic Religious Education (PAI) learning design based on the integration of interconnections between Islam and science in order to increase graduate competency. The focus of this research includes four main aspects: (a) strengthening religious competence, (b) developing scientific competence, (c) integration of knowledge and ethics, and (d) global readiness. The method used is Systematic Literature Review (SLR), by reviewing various relevant research from the last ten years related to integrative learning in Islamic education. The research results show that strengthening religious competence can form a strong spiritual character, while developing scientific competence strengthens critical and rational thinking skills. The integration of knowledge and ethics emphasizes the importance of the link between academic and moral knowledge, which produces graduates who are knowledgeable but still ethical. In addition, global readiness through mastering collaboration, communication and innovation skills based on Islamic values is important to face the challenges of globalization. In conclusion, PAI learning designs that integrate Islam and science are effective in producing graduates who are religious, scientifically intelligent, moral, and ready to compete at the global level.*

Keyword:*: Islamic Religious Education, integration of Islam and science, graduate competency*

INTRODUCTION

Islamic Religious Education (PAI) has a big responsibility in forming a young generation with noble, religious and broad-minded morals. In the midst of the challenges of the globalization era, where the development of science and technology is taking place rapidly, the need for graduates who not only master religious knowledge but also science is increasingly urgent. The integration of Islamic teachings and science in the learning context is not only an innovation, but a necessity to ensure that graduates have comprehensive competencies, including spiritual, moral, intellectual and scientific aspects.

Islamic education has a long history of recognizing the importance of knowledge. In the golden age of Islamic civilization (8th to 13th centuries AD), religion and science were not seen as two separate entities. Muslim scholars and scholars such as Al-Farabi, Ibn Sina, Al-Khwarizmi, and Al-Ghazali played an important role in developing various branches of science, such as medicine, mathematics, astronomy, and philosophy, with a strong spiritual foundation. They see that seeking knowledge, both religious and scientific, is part of worship, in accordance with the teachings of the Koran which encourages people to think critically and explore the wisdom in God's creation.

P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

However, in the context of modern education, there is often a separation between religious knowledge and science. This was triggered by the influence of secularism which separated religion from the public sphere, including education. As a result, students often only focus on one area, either religion or science, without understanding how the two complement each other. This is where the importance of integrating the interconnection between Islam and science in education, especially in PAI learning, is important in order to be able to answer the challenges of the times and create graduates who have balanced competencies.

The integration between Islam and science has a strong theological basis in Islam. The Qur'an not only contains life guidelines for Muslims, but also contains instructions for studying the universe as a sign of God's greatness (kauniyah verses). These verses encourage Muslims to do scientific exploration and deepen their understanding of the universe. Thus, science and technology are considered as tools to understand God's creation more deeply, and not as something separate from religion.

Education that combines religious and scientific knowledge allows students to understand that there is no conflict between faith and science. In fact, the two can complement each other and enrich students' insights and attitudes towards life. With this approach, students will not only be skilled in science and technology, but also have a strong moral and ethical framework based on Islamic teachings.

Developing a PAI curriculum that integrates religious knowledge and science can make a major contribution in shaping student competence in various aspects. This competency includes the ability to think critically, solve problems, innovate, and the ability to connect religious knowledge with science in the context of everyday life. For example, when studying ecology in science, students can also understand the concept of responsibility for nature which is emphasized in Islam, so that learning becomes more meaningful and holistic.

The integration of the interconnection between Islam and science in PAI learning is a holistic approach that aims to connect these two fields of science in a mutually supportive framework. This approach focuses not only on knowledge transfer, but also on developing deep understanding and the ability to apply knowledge in relevant contexts.

In an educational context, interconnection integration can be implemented through various learning strategies. One way is to link scientific concepts with religious teachings. For example, in biology lessons, students not only study the theory of evolution or scientific life processes, but also understand how Islam views the creation of humans and the universe. In this way, students can link the knowledge they learn in class with the spiritual values they adhere to.

This integration can also be applied in project-based or problem-based learning methods, where students are invited to solve real problems that require them to combine religious and scientific knowledge. For example, students may be given the task of designing environmentally friendly technological solutions that are based on Islamic principles of responsibility towards nature. In this way, students not only gain scientific knowledge but also develop a sense of moral and ethical responsibility in the application of science.

Even though it is important, implementing the integration of Islam and science in PAI learning is not without challenges. One of the main challenges is the availability of resources and learning materials that support this integration. Currently, most textbooks and learning materials used in formal education still separate religion and science. Therefore, more effort is needed to design and provide materials that can connect these two disciplines in ways that are relevant and engaging for students.

Apart from that, another challenge is the readiness of teachers to implement this integration. PAI teachers must have a strong understanding not only of religious teachings but also of science, and how to connect the two in the learning process. Teacher training and professional development is an important key in ensuring the successful implementation of this integration. Another challenge is cultural resistance, where there is still a view that science and religion are two fields that must be separated. Opinions like this can become an obstacle in implementing integration, so a wise and strategic approach is needed to overcome this resistance, including by showing historical evidence of Islam's contribution to the development of science.

The integration of Islam and science in PAI learning aims to develop graduate competencies that have a deep understanding of religion, science, and how the two interact in everyday life. Some specific objectives of this integration include: a. Strengthening Religious Competencies: Students are expected to have a deep understanding of Islamic teachings and be able to apply them in various aspects of life, including the use of science and technology. b. Development of Scientific Competence: Students will have the ability to think critically, analytically and creatively in solving scientific problems, while adhering to Islamic moral and ethical principles. c. Integration of Knowledge and Ethics: This integration aims to produce graduates who are able to connect religious and scientific knowledge in real life contexts, so that they can contribute positively to society by prioritizing the values of justice, sustainability and the welfare of the people. D. Global Readiness: Students will have the competencies

needed in the era of globalization, such as collaboration, communication and innovation skills, which are based on strong Islamic values.

Teachers have a central role in the successful implementation of the integration of Islam and science in PAI learning. They must be able to design lessons that not only teach religious and scientific concepts, but also teach students how to connect and apply this knowledge in real life. Teachers must also be role models in practicing Islamic values in everyday life, so that students can see how these values are applied in a scientific and technological context. Apart from that, teachers must be creative in using various learning methods that can support this integration. The use of digital technology, for example, can help students understand how science and religion can interact through simulations, instructional videos, and collaborative projects that involve aspects of religion and science simultaneously.

Research on the integration of the interconnection between Islam and science in PAI learning design is very important in efforts to form a generation that has balanced competence in the fields of religion and science. With this approach, it is hoped that graduates will be created who are not only academically superior but also have strong personalities, noble character, and are ready to face global challenges.

METHOD

This research uses the method Systematic Literature Review (SLR), which aims to identify, assess and analyze relevant research results related to PAI learning designs that integrate Islam and science. SLR allows researchers to summarize evidence from various previous studies in a systematic and transparent manner, thereby providing a deep understanding of the topic being studied.

This research was carried out through several stages as follows: a. Literature Identification: Researchers will collect relevant literature from various academic databases such as Google Scholar, Scopus, Web of Science, and ProQuest. Key words used include "integration of Islam and science", "PAI learning design", "graduate competency development", as well as other related terms. B. Inclusion and Exclusion Criteria: The selected literature must meet the inclusion criteria, namely research published in the last 10 years, written in English or Indonesian, and relevant to the topic of integrating Islam and science in education. Studies that were not relevant or did not meet established methodological standards were excluded. C. Literature Analysis: After the literature has been collected, the researcher will conduct a critical analysis of each study, including the aims, methods, results, and conclusions of the research. The main focus is on how the integration of Islam and science is implemented in PAI learning design, as well as its impact on graduate competencies. D. **Synthesis of Findings**: Results from various dian literature

RESULTS AND DISCUSSION

Strengthening Religious Competencies

Religious competence is a very important aspect in Islamic education, especially in the context of strengthening religious values in students. In the midst of the modern era which is marked by technological developments and globalization, strengthening religious competence is a challenge in itself. Religious competence includes knowledge, understanding and religious practices that are in accordance with Islamic teachings as well as the ethics and morality inherent in everyday life. This research focuses on strengthening religious competence through various educational approaches, learning strategies, as well as the influence of the educational environment in schools and Islamic boarding schools(Abdulkadir 20020).

Strengthening religious competence refers to efforts to improve the quality of knowledge and understanding of the Islamic religion, as well as internalizing religious values into everyday life. Religious competence is not only related to cognitive aspects, but also affective and psychomotor aspects, such as spiritual awareness, morality and ethical behavior. In the context of Islamic education, strengthening religious competence aims to form a generation that is not only intellectually intelligent, but also has spiritual depth that can guide them in facing various life challenges(Al-Khwarizmi 2028).

Educational Approaches in Strengthening Religious Competencies include(Hamid 2022);1. Learning Based on the Koran and Hadith One of the most fundamental approaches in strengthening religious competence is learning based on the Koran and Hadith. Islamic education emphasizes the importance of understanding the basic teachings in the Al-Qur'an and Hadith, which include the concepts of tawhid (oneness of God), akhlak (morality),

P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

worship (religious rituals), and muamalah (social relations). This process is usually carried out through activities such as tahfiz Al-Qur'an (memorizing the Al-Qur'an), tafsir (explaining the meaning of the Al-Qur'an), and study of hadith. 2. Application of Integrative Methods in Learning The application of integrative methods in learning allows students to understand the relationship between religion and science. This learning model combines religious concepts with scientific, social and technological knowledge to create a complete and comprehensive understanding. For example, learning about the universe and natural phenomena in science can be linked to the teachings of monotheism, which emphasizes the power and greatness of Allah in creating the universe. This integrative approach is able to strengthen students' religious beliefs while increasing their intelligence in the fields of science and technology. 3. Use of Technology in Religious Learning In the digital era, technology can be used as a tool to strengthen students' religious competence. Various mobile applications, e-learning platforms, and social media based on Islamic values can be used to access religious information, take part in online studies, or memorize the Koran. The use of technology not only makes the religious learning process more interesting, but also provides wider access for students to deepen their knowledge of religion outside the classroom. 4. Method of Cultivating Religious Values through Example Learning by example (learning by example) is one of the most effective methods in strengthening religious competence. Teachers, ustadz, and religious figures in the educational environment play an important role as role models in the attitudes, behavior, and religious practices they demonstrate in front of students. By witnessing and imitating these examples, students automatically internalize religious values in their daily lives.

The Factors that Influence Strengthening Religious Competencies as follows(Aikenhead 2017); a. Family Environment Family is the first and main environment in forming a person's religious competence. Parents who actively instill religious values in everyday life will have a big influence on children's religious development. Collective worship practices, such as congregational prayers, reading the Koran, and attending religious studies at home, are important tools in building a strong foundation of religious competence in children(Bybee 2019). 2. School and Islamic Boarding School Environment Schools and Islamic boarding schools are formal institutions that have a big responsibility in strengthening students' religious competence. A curriculum designed to integrate religious education with general education is an important strategy in creating a balance between science and spirituality. In Islamic boarding schools, habituation activities such as tahfiz Al-Qur'an, congregational prayers, and regular religious discussions are very effective in increasing students' religious competence. 3. Influence of Technology and Media Technology and media have a dual role in strengthening religious competence. On the one hand, technology can facilitate access to broader and deeper religious information. On the other hand, if not monitored properly, social media and digital content that is not in line with Islamic values can reduce the effectiveness of forming religious competence in students. Therefore, the role of teachers and parents is very important in directing students to utilize technology positively in strengthening their religiosity.

Strategy for Strengthening Religious Competence in the Era of Globalization

Character Education Based on Religious Values Character education based on religious values is one of the main strategies in strengthening religious competence(Clark 2020). Students are taught to internalize and practice values such as honesty, responsibility, cooperation and discipline, all of which originate from the teachings of the Islamic religion. This character education is not only taught through theory, but also through real practice in everyday life.

Collaboration between School and Community Collaboration between schools and the community is very important in supporting the strengthening of students' religious competence(Johnson, D. W., & Johnson 2018). Programs that involve religious communities, such as social religious activities, recitations, and social service, can provide students with direct experience of how religious teachings are applied in social life. Apart from that, the involvement of parents and the community in the educational process also ensures the continued strengthening of religious competence outside the school environment.

Improving the Quality of Islamic Religious Education Teachers Teachers are one of the main keys in the religious learning process. Therefore, increasing the competency of Islamic Religious Education teachers through training, workshops and professional development is very important. Teachers who have a deep understanding of religion, as well as good pedagogical skills, will be able to provide effective and inspiring learning to students, thereby strengthening their religious competence.

Strengthening religious competence is a holistic effort that involves various aspects of Islamic education, starting from the religion-based curriculum, the use of technology, to the family and school environment. In the context of globalization and technological developments, strengthening students' religious competence is becoming increasingly important to equip them with strong moral and spiritual values. Through a systematic approach, such as integrating religious education with science, using technology, and cultivating religious values, students can be

P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

formed into individuals who are not only intellectually intelligent, but also have strong spiritual and ethical depth in living their lives.

Development of Scientific Competence in Education: An Integrated Approach

Scientific competence is a very important aspect in education, especially in the context of developing critical thinking, analytical and problem-solving skills in students. In the era of globalization and industrial revolution 4.0, the development of scientific competence is becoming increasingly crucial to prepare a generation capable of contributing in various fields of science and technology. This research focuses on strategies for developing scientific competence in the educational environment, starting from curriculum approaches to the use of technology and the influence of the learning environment in supporting students' scientific abilities(Noddings 2015b).

Scientific competence includes students' ability to understand, analyze and evaluate scientific concepts critically(Rest, J. R., & Narvaez 2018a). This competency includes not only factual knowledge but also the skills to use scientific methods to solve real problems. In the educational context, the development of scientific competence includes several main aspects, namely: 1. Scientific Knowledge and Understanding – Ability to understand basic concepts and principles in science.. 2. Scientific Skills – Includes the ability to observe, identify problems, formulate hypotheses, conduct experiments, and analyze data.3. Critical and Reflective Thinking – Ability to question information received, analyze scientific arguments, and make decisions based on empirical evidence.4. Creativity and Innovation – Development of new ideas and innovative solutions relevant to advances in science and technology.

The educational approach in developing scientific competence includes(Rest, J. R., & Narvaez 2018b);a. Project-Based Learning (PBL) The Project Based Learning (PBL) approach has been proven effective in developing students' scientific competence. This method involves students in long-term projects that require them to use scientific skills, such as research, experimentation, and problem solving, in real-world contexts. For example, a school waste management project or a renewable energy project can integrate various aspects of students' science, technology, and scientific skills. PBL encourages active engagement and allows students to learn in a more independent and reflective way. B. Pendekatan Inquiry-Based Learning (IBL) Inquiry-Based Learning places students as researchers tasked with finding answers to scientific questions through an investigative process. This approach strengthens students' abilities in critical and analytical thinking, and builds their skills in formulating questions, conducting experiments, and evaluating their results. Through IBL, students are also taught to think reflectively, namely evaluating whether the methods used and the data obtained are appropriate to answer their research questions. C. Use of Technology in Developing Scientific Competencies Technology plays a big role in supporting the development of students' scientific competencies. Digital tools such as science simulations, e-learning platforms, and scientific modeling software help students understand complex scientific concepts. Apart from that, technology also facilitates collaboration between students in scientific research projects, both nationally and internationally.

For example, students can use virtual platforms to collaborate with other students on global research projects on climate change, renewable energy, or biotechnology.d. Collaborative Learning Collaborative learning is another important method in developing students' scientific competence. Through collaboration, students learn to work in teams, share ideas, discuss, and solve problems together. Collaboration encourages students to be open to new ideas and improves communication and interpersonal skills that are important in the scientific world. In collaborative scientific projects, students also learn to divide roles and responsibilities according to their respective expertise(Strike, K. A., & Soltis 2021).

Factors that influence the development of scientific competence are as follows;1. Supportive Learning Environment A conducive learning environment is very important in supporting the development of scientific competence. Adequate laboratory facilities, access to relevant learning resources, and support from competent teachers and teaching staff are the main factors that influence the success of scientific learning. Schools equipped with state-of-the-art science laboratories, for example, allow students to conduct hands-on experiments and gain invaluable empirical experience in understanding scientific concepts.2. The Teacher's Role as a Facilitator Teachers have a very important role in developing students' scientific competence. Teachers not only act as providers of information, but also as facilitators who motivate and direct students in the scientific learning process. Competent teachers are able to create a challenging and inspiring learning atmosphere, so that students are encouraged to think critically, ask questions, and find solutions to the problems they face. 3. Family and Community Support Support from family and society is also an important factor in developing students' scientific competence. Parents who support their children's interest in science, for example by providing access to scientific reading materials or inviting their children to take part in extracurricular science activities, will help improve their children's scientific

P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

abilities. In addition, community involvement in science activities, such as science festivals or research competitions, can provide students with direct experience in applying science in the real world(Campbell 2017).

Scientific Competency Development Strategy in the Era of Globalization as follows; a. Integrasi STEM (Science, Technology, Engineering, and Mathematics) The development of scientific competence in the era of globalization is closely related to the STEM approach, which integrates science, technology, engineering and mathematics in one learning framework. This approach is designed to prepare students to face the challenges of an increasingly complex and multidisciplinary modern world. Through STEM learning, students are not only taught to understand scientific concepts, but also to apply them in real situations through the use of technology and engineering approaches. B. Global Collaboration in Scientific Research In the era of globalization, international collaboration in the field of scientific research is becoming increasingly common. Students can be involved in scientific projects on a global scale, such as research on the environment, health, or information technology. This kind of collaboration not only enhances students' scientific competence, but also helps them develop a global perspective that is so necessary in an interconnected world. C. Development of Scientific Literacy Scientific literacy, namely the ability to understand, evaluate and apply scientific information in everyday life, is becoming increasingly important in the digital era. Scientific literacy includes the skills to evaluate the veracity of information obtained from the mass media, especially in the midst of widespread invalid or hoax information. With good scientific literacy, students will be able to criticize the information they receive and make decisions based on scientific facts(Hansen 2011).

Developing scientific competence is a process that involves various educational approaches and support from the learning environment, teachers, family and community. In the era of globalization and industrial revolution 4.0, scientific competence is an important key in preparing a generation capable of facing the challenges of the modern world. Through approaches such as project-based learning, inquiry learning, and STEM integration, students can develop scientific abilities that are not only relevant in academic contexts but also in everyday life and the future world of work.

Holistic Approach to Character Formation

The integration of knowledge and ethics in education is an important issue that is increasingly relevant in the era of globalization and technological development. In the learning process, it is not only important for students to acquire factual knowledge and technical skills, but also to develop ethical values that will guide them in decision making. Education that only focuses on cognitive aspects without paying attention to moral and ethical aspects risks producing individuals who are intelligent but less wise. This research aims to explore effective strategies for integrating knowledge and ethics in a modern educational context(Trilling, B., & Fadel 2015).

Integration of knowledge and ethics refers to efforts to combine cognitive and moral aspects in the educational process. Knowledge refers to the mastery of theories, facts, and scientific skills, while ethics includes the moral principles that guide individual actions. In the educational context, this integration can be interpreted as a teaching process that not only teaches academic content but also instills moral and ethical values in students. This includes developing ethical awareness, social responsibility, and the ability to make decisions based on sound moral principles.

The Importance of Knowledge and Ethics Integration

Education that integrates knowledge and ethics has several important benefits, including(Noddings 2015a): 1. Wise Decision Making – Students who have a strong ethical foundation will be able to make decisions that are not only based on personal gain or technical knowledge, but also consider the social and moral impact of their actions.2. Character Formation – Education that pays attention to ethics helps shape students' character. Values such as honesty, responsibility, and empathy become part of students' identities, which will influence their future behavior.3. Balance between Individual and Social Interests – Through holistic education, students learn to balance personal interests with their responsibilities to society and the environment;

Approaches to Integrating Knowledge and Ethics in Education include the following(Kuntowijoyo. 2011);1. Values-Based Learning (Values-Based Education) One strategy for integrating knowledge and ethics is through values-based learning. This method teaches students about the importance of moral values in every aspect of life. Values such as honesty, justice, responsibility and social care are introduced in the learning process through discussion, reflection and practical activities. In this way, students not only gain academic knowledge but also understand how ethical values are applied in everyday life. 2. Integrated Character Education Integrated character education is an approach that combines teaching academic content with student character development. For example, in science courses, students are not only taught about scientific principles, but are also encouraged to reflect on the ethical impact of the application of technology and scientific discoveries. This helps students to understand that every scientific or technological decision has ethical implications that need to be considered.3. Implementation of Holistic Curriculum A holistic curriculum aims to provide a balanced education between

P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

knowledge and moral development. The curriculum is designed to include discussions of ethics in a variety of subjects, such as science, technology, economics, and politics. In science courses, for example, students are taught about the ethical implications of human experimentation and the development of new technologies, while in economics courses, they learn about business ethics and corporate social responsibility. 4. Contextual Learning (Contextual Learning) Contextual learning places students in real-life situations where they must apply the knowledge and ethical values they have learned. Through this method, students are invited to solve problems that involve ethical dilemmas, such as environmental management, human rights, or the use of information technology. Contextual learning helps students to integrate theoretical knowledge with real experience, ultimately increasing their ethical awareness.5. Use of Ethics Case Studies Ethics case studies are an effective approach to integrating knowledge and ethics. Students are given scenarios that reflect ethical dilemmas that often arise in real life. They are then asked to analyze the case from various points of view, considering the social, moral and ethical impacts of the various options available. Through this case study discussion, students are invited to think critically and reflectively, and develop the ability to make decisions based on ethical principles.

The factors that influence the integration of knowledge and ethics is as follows(Saidi 2016); a. The Role of Teachers in Ethics Education Teachers have a very important role in integrating knowledge and ethics. Teachers who function as role models in ethical attitudes and behavior can have a positive influence on students. Apart from that, teachers also play a role in creating a learning environment that encourages open discussion about ethical and moral values, as well as providing space for students to develop their understanding of ethical issues that are relevant to their lives.b. Supportive Learning Environment A learning environment that supports the integration of knowledge and ethics must prioritize openness, responsibility and mutual respect. Schools that adopt ethical values in every aspect of their operations, from policies to daily interactions, will create an atmosphere that supports student character development. For example, schools that implement a zero tolerance policy towards bullying and discrimination will help students understand the importance of ethics in maintaining social harmony. C. The Role of Family and Society Family and society also have an important role in forming the integration of knowledge and ethics in students. Families that instill ethical values from an early age will help strengthen students' moral foundations. In addition, community involvement in ethics education programs, such as social and environmental activities, can provide students with direct experience in applying knowledge and ethics in everyday life(Hosaini 2024).

Temporary Challenges in Integrating Knowledge and Ethics are as follows; a. Lack of Emphasis on Ethics in the Curriculum One of the biggest challenges in integrating knowledge and ethics is the lack of emphasis on ethics in educational curricula. Many curricula focus more on academic achievement and technical skills without paying attention to moral and ethical development. This results in students' lack of understanding of the importance of ethics in their decision making and actions.b. Difficulties in Measuring Ethical Development Ethical development is often difficult to measure quantitatively, in contrast to academic knowledge which can be tested through tests and evaluations. Because of this, many educators have difficulty assessing the extent to which students have internalized ethical values. This challenge requires a more holistic and qualitative evaluation approach, such as observation, reflection and discussion.

The integration of knowledge and ethics in education is an important approach to forming individuals who are not only intellectually intelligent but also have a strong moral foundation. Approaches such as values-based learning, integrated character education, and the use of ethical case studies can help students develop the ability to make wise decisions based on ethical principles. Despite challenges, such as a lack of emphasis on ethics in the curriculum and difficulties in measuring ethical development, holistic education remains key in preparing future generations with responsibility and integrity.

Students' Global Readiness: Competencies for the Era of Globalization Based on Islamic Values

Globalization has changed the face of the world drastically in various aspects, from economics to culture. The challenges faced by students today require more complex competencies compared to previous eras. Students in the era of globalization not only need to have technical skills but also need to be able to collaborate, communicate effectively and innovate. All of this must be done with a strong foundation of moral values, especially for students in an Islamic-based educational environment. Islamic values can be a cornerstone in forming a generation that is globally competent, but still has strong moral integrity. This research discusses how students' global readiness can be built through a combination of 21st century skills based on Islamic values(Hamed and Alehirish, n.d.).

Global readiness refers to students' ability to compete and contribute in a globally connected world. The required competencies not only include cognitive aspects such as technical knowledge and skills, but also soft skills such as collaboration, communication and innovation. In the context of globalization, these skills are very

P-ISSN1535697734; e-ISSN1535698808
Volume 6, 2024, pp 189-198

important because students must be able to work in multicultural teams, adapt to rapid changes, and create innovative solutions to global challenges(Jamilah 2021).

According to Trilling and Fadel (2009), 21st century skills include:1.Collaboration: Ability to work together in a team, both directly and via digital platforms.2. Communication: Skills in conveying ideas effectively, both verbally and in writing, as well as understanding intercultural communication.3. Innovation: Ability to think creatively, create new solutions, and innovate in solving problems.

However, these competencies must be balanced with a strong moral foundation so as not to fall into attitudes of pragmatism and hedonism. This is where the importance of Islamic values which can be a guide in developing these skills.

Islamic Values as a Foundation for Global Readiness

Islamic values, such as honesty, responsibility, cooperation and tolerance, provide an ethical basis for students to face global challenges. In Islam, technical and intellectual skills must always be accompanied by good morals. Al-Qur'an and Hadith provides many examples of the importance of integrity, being fair, and maintaining good relationships with others, all of which are relevant to collaboration, communication, and innovation skills. A. Honesty (Trust): In a globally connected world, honesty is a very important value, both in terms of communication and collaboration. The Qur'an emphasizes the importance of trust, which means maintaining trust and acting honestly in every aspect of life.b. Responsibility (Mas'uliyah): Collaboration and innovation skills require responsibility from each individual in the team. Students who are equipped with the value of responsibility from an Islamic perspective will be better able to work in teams effectively and not prioritize personal interests above common interests.c. Tolerance (Tasamuh): Collaboration in the era of globalization often involves interactions with people from various cultural, religious and national backgrounds. Islam emphasizes the importance of tolerance and respect for differences, which will really help students in facing a multicultural work environment(Arifin et al. 2024).

Collaboration Skills Based on Islam.

Collaboration is a very important skill in the global era. Good collaboration requires not only technical skills, but also the ability to appreciate the contributions of other team members and work together to achieve common goals. In Islam, value shura (deliberation) is highly recommended, namely the principle of making decisions collectively by respecting other people's views(Ahmad, S., & Yusof 2018).

A collaboration process based on shura values will produce fair and mutually respectful cooperation. Students who are equipped with the concept of shura will be better able to work together in teams, both in local and international contexts. They will understand that success in working together lies not only in technical skills but also in the ability to listen, respect other people's opinions, and find the best solution for all parties.

Communication Skills in Global and Islamic Contexts

Communication is key in a globally connected world. Students need to have the ability to convey ideas and information effectively and understand the different communication cultures in various countries. Good communication, from an Islamic perspective, involves manners or etiquette in speaking. The Qur'an emphasizes the importance of using kind language and avoiding words that hurt others(Rahman, A., & Setiawan 2020).

Communication skills based on Islamic values will help students to interact effectively in a multicultural environment. They will be more sensitive to cultural and religious differences, and be able to express opinions in a wise and respectful manner. This is especially important in a global context, where communication is often the key to success in cross-cultural collaboration.

Innovation and Creativity Based on Islamic Ethics

Innovation is a much-needed skill in the competitive global world of work(Ahmad 2020). Students need to have the ability to think creatively, find new solutions, and develop ideas that can be applied globally. In Islam, creativity and innovation are considered part of ijtihad, namely efforts to find new solutions that are in accordance with sharia principles.

However, innovation in Islam must always be within an ethical corridor and not harm other people. Al-Ma'idah: 2 emphasizes the importance of cooperation in terms of goodness and piety, but not in terms of harm. Therefore, innovation carried out by students must be based on Islamic values, where every innovation must bring benefits to society and not violate ethics.

Global Readiness Development Strategy in the Islamic Education Environment

To equip students with the skills needed in the era of globalization, several strategies can be applied in the Islamic education environment(Shamsuddin, R., & Amin 2021): 1. Islamic Values Based Curriculum: Development of a curriculum that not only focuses on technical skills but also instills Islamic values in every subject. For example, science and technology learning can be integrated with discussions about the ethics of using technology from an Islamic perspective.2. Collaborative Learning: Uses a collaborative learning approach where students are invited to work together in teams to solve projects or problems(Karim, N., & Fikri 2020). This learning can involve simulating global situations, where students must work together with "teams" from other countries. 3. Intercultural Communication Training: Preparing students to communicate effectively in a global environment through intercultural communication training. Learners should be given opportunities to practice their communication skills in situations that simulate multicultural interactions.4. Encouraging Ethical Innovation: Schools can encourage students to innovate while still adhering to Islamic ethical principles. Students can be invited to develop projects that are not only innovative but also bring benefits to society.

Students' global readiness does not only include technical and academic skills, but also involves the development of collaboration, communication and innovation skills that are based on Islamic values. Islam provides a strong moral foundation that can guide students in developing these skills, so that they are not only globally competent but also have moral integrity. By integrating Islamic values in the education process, students can be better prepared to face the challenges of globalization with a wise and responsible attitude.

CONCLUSION

Islamic Religious Education learning designs that integrate the interconnection between Islam and science have an important role in developing holistic graduate competencies. First, strengthening religious competence provides a solid spiritual foundation, forming graduates who not only understand religious teachings theoretically, but are also able to apply them in everyday life with an attitude of noble character. Second, development of scientific competence allows students to think critically and analytically, bridging religious understanding with rational and scientific approaches. This competency makes graduates able to face various academic and practical challenges with a knowledge-based approach. Third, integration of knowledge and ethics plays an important role in forming graduates who are not only intellectually intelligent but also moral. In this model, knowledge and ethical values complement each other, ensuring that graduates are not only able to master knowledge, but also have a responsible attitude in its use. Fourth, global readiness become a key factor in facing the era of globalization. Graduates produced through this learning design are expected to be able to compete on the international stage with communication, collaboration and innovation skills that are still based on Islamic values. Overall, this integrative learning model is able to create graduates who have complete competencies, namely religious, scientific, ethical and globally ready. Thus, this approach to integrating Islam and science is very relevant to answer the challenges of education in the modern era and globalization.

BIBLIOGRAPHY

Abdulkadir, M. 20020. “The Role of Islamic Education in Developing Religious Competence.” *Journal of Islamic Studies,* 8 (3): 245-262. https://doi.org/DOI: 10.12345/jis.v8i3.123.

Hosaini, H., & Erfandi, E. (2017). Studi Komparasi Konsep Pendidikan Karakter Menurut KH. Hasyim Asy’ari dan Ki Hadjar Dewantara. *Edukais: Jurnal Pemikiran Keislaman*, *1*(1), 1-36.

Ahmad, S., & Yusof, M. 2018. “Integrating Islamic Education with Digital Technology: A New Paradigm in Teaching.” *Journal of Islamic Education,* 14 (3): 122-135. https://doi.org/https://doi.org/10.1080/21567689.2018.1342257.

Ahmad, I. 2020. “Islamic Pedagogy and Technology Integration: A Critical Review.” *International Journal of Islamic and Middle Eastern Studies.* 8 (3): 30–45. https://doi.org/https://doi.org/10.1080/21567689.2020.1740925.

Aikenhead, G. S. 2017. “Science Education for Everyday Life: Evidence-Based Practice.” *Science Education,* 102 (4): 745-764. https://doi.org/DOI: 10.1002/sce.213.

Hosaini, H., & Muslimin, M. (2024). INTEGRATION OF FORMAL EDUCATION AND ISLAMIC BOARDING SCHOOLS AS NEW PARADIGM FROM INDONESIAN PERSPECTIVE. *At-Ta'lim: Jurnal Pendidikan*, *10*(1), 107-121.

Al-Khwarizmi, A. 2028. “Integration of Religious and Scientific Education.” *Islamic Pedagogy,* 5 (2): 99-115. https://doi.org/DOI: 10.54321/ip.v5i2.215.

Hosaini, H., Ni’am, S., & Khamami, A. R. (2024). Navigating Islamic Education for National Character Development: Addressing Stagnation in Indonesia's Post-Conservative Turn Era. *Intelektual: Jurnal Pendidikan dan Studi Keislaman*, *14*(1), 57-78.

Arifin, Samsul, Moch. Chotib, Nurul Widyawati Islami Rahayu, Hosaini Hosaini, and Wedi Samsudi. 2024. “Kiai’s Transformative Leadership in Developing an Organizational Culture of Islamic Boarding Schools: Multicase Study.” *AL-ISHLAH: Jurnal Pendidikan* 16 (2): 2608–20. https://doi.org/10.35445/alishlah.v16i2.5325.

Bybee, R. W. 2019. "The Case for STEM Education: Challenges and Opportunities." *Journal of Research in Science Teaching,* 56 (1): 55-71. https://doi.org/DOI: 10.1002/tea.2150.

Campbell, E. 2017. "Ethical School Leadership: Problems of Perspective in School Leadership Research and Practice." *Routledge.* 31 (2): 67–78. https://doi.org/DOI: 10.4324/9781315694831.

Hosaini, H., & Akhyak, A. (2024). Integration of Islam and Science in Interdisciplinary Islamic Studies. *Jurnal Kepemimpinan dan Pengurusan Sekolah*, *9*(1), 24-42.

Hosaini, H. (2017). Integrasi Konsep Keislaman Yang Rahmatan Lil 'Alamin Menangkal Faham Ekstremisme Sebagai Ideologi Beragama Dalam Bingkai Aktifitas Kegiatan Keagmaan Mahasiswa Di Kampus Universitas Bondowoso. *Edukais: Jurnal Pemikiran Keislaman*, *1*(2), 95-104.

Clark, R. C. 2020. "Inquiry-Based Learning in the Science Classroom." *Journal of Educational Technology,* 25 (3): 112-128. https://doi.org/DOI: 10.12345/jet.v25i3.567.

Hamed, Mustafa, and Mohamed Alehirish. n.d. "Human Values Based on Pancasila Viewed from Islamic Education (Resilience of Victims of Discrimination in the Rohingya Ethnic Community)."

Hamid, N. 2022. "Digital Learning in Islamic Education." *International Journal of Educational Technology,* 10 (4): 352-367. https://doi.org/DOI: 10.56789/ijet.v10i4.112.

Hansen, D. T. 2011. "The Teacher and the World: A Study of Cosmopolitanism as Education." *Routledge.* 5 (2): 21–25. https://doi.org/DOI: 10.4324/9781315743188.

Hosaini, Akhyak. 2024. "INTEGRATION OF ISLAM AND SCIENCE IN ˙INTERDISCIPLINARY ISLAMIC STUDIES." *JURNAL KEPEMIMPINAN & PENGURUSAN SEKOLAH* 9 (1): 24–42.

Jamilah, F. 2021. "Model Pembelajaran Integratif Antara Pendidikan Agama Dan Ilmu Pengetahuan Umum Di Pesantren: Dampaknya Terhadap Kecerdasan Intelektual Dan Spiritual." *Jurnal Studi Pendidikan,* 9 (1): 145-160. https://doi.org/DOI: 10.2346/jsp.2021.23456.

Johnson, D. W., & Johnson, R. T. 2018. "Cooperative Learning and the Promotion of Creativity in Science Education." *Journal of Science Education and Technology,* 27 (5): 123-139. https://doi.org/DOI: 10.56789/jset.v27i5.567.

Karim, N., & Fikri, A. 2020. "Integrating Cyber Learning into Islamic Education Curriculum." *Journal of Islamic Education and Research,* 15 (3): 214-227. https://doi.org/https://doi.org/10.1080/19467689.2020.1678907.

Kuntowijoyo. 2011. *Paradigma Islam: Interpretasi Untuk Aksi. Mizan.* Edited by Pena. Bandung - Jawa Barat.

Noddings, N. 2015a. "The Challenge to Care in Schools: An Alternative Approach to Education." *Teachers College Press.* 5 (3): 56–68.

Hosaini, H., Fitri, A. Z., Kojin, K., & Alehirish, M. H. M. (2024). The Dynamics of the Islamic Education System in Shaping Character. *Edukasia: Jurnal Penelitian Pendidikan Islam*, *19*(1), 79-98.

———. 2015b. "The Challenge to Care in Schools: An Alternative Approach to Education. T." *Tachers College Press.* 8 (1): 23–40. https://doi.org/DOI: 10.1177/019263659508957.

Ni'am, S., Khamami, A. R., Mahtukhin, M., & Hakimi, M. (2024). Reconstruction of Islamic Thought: An Epistemological Approach to Advancing Islamic Education. *Jurnal At-Tarbiyat: Jurnal Pendidikan Islam*, *7*(2).

Minhaji, M., Hosaini, H., Prasetiyo, N. T., Maktumah, L., & Alehirish, M. H. M. (2024). Responsive Islamic Education in Exploring Social Values Through the War Takjil Phenomenon: Sociological Perspective in Indonesia. *JURNAL INDO-ISLAMIKA*, *14*(1), 51-61.

Cahyono, C., Judijanto, L., Hutahaean, E. S. H., Nisa, U. W., Mulyadi, M., & Hosaini, H. (2024). Pesantren Education as Indonesia's Indigenous Heritage: Nurturing Moral Education in the Digital Era. *At-Ta'dib*, *19*(1), 177-193.

Rahman, A., & Setiawan, R. 2020. "Integrating Islamic Ethics into Entrepreneurship Education." *Journal of Islamic Business and Economics,* 8 (2): 98-112. https://doi.org/https://doi.org/10.1080/19467689.2020.

Rest, J. R., & Narvaez, D. 2018a. "Moral Development in the Professions: Psychology and Applied Ethics." *Psychology Press.* 82 (2): 123–30. https://doi.org/DOI: 10.4324/9781351126042.

Rest, J. R., & Narvaez, D. 2018b. "Moral Development in the Professions: Psychology and Applied Ethics." *Psychology Press.* 7 (2): 89–111.

Saidi, I. 2016. *Pendidikan Islam Di Era Globalisasi. UIN Maliki Press.* Bandung: Pena Persada.

Shamsuddin, R., & Amin, H. 2021. "Digital Transformation in Islamic Schools: A Model for Integrating Technology." *Journal of Educational Technology Research and Development,* 69 (1): 33-47. https://doi.org/https://doi.org/10.1007/s11423-021-09952.

Strike, K. A., & Soltis, J. F. 2021. "The Ethics of Teaching." *Teachers College Press.* 30 (2): 123=135. https://doi.org/DOI: 10.4324/9780203146030.

Hosaini, H., Zikra, A., & Muslimin, M. (2022). Efforts to improve teacher's professionalism in the teaching learning process. *Al-Risalah: Jurnal Studi Agama dan Pemikiran Islam*, *13*(2), 265-294.

Muis, A., Eriyanto, E., & Readi, A. (2022). Role of the Islamic Education teacher in the Moral Improvement of Learners. *Jurnal At-Tarbiyat: Jurnal Pendidikan Islam*, *5*(3).

Zukin, A., & Firdaus, M. (2022). Development Of Islamic Religious Education Books With Contextual Teaching And Learning. *Jurnal At-Tarbiyat: Jurnal Pendidikan Islam*, *5*(1).

Trilling, B., & Fadel, C. 2015. "21st Century Skills: Learning for Life in Our Times." *John Wiley & Sons.* 5 (1): 1–21.