
Integrating Islamic Values and AI-Based Deep Learning: Implementation at SMK Negeri 1 Kebumen Towards Achieving Educational SDGs

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Abstract

Objective: This study aims to explore the implementation of Islamic values in conjunction with artificial intelligence (AI)-based deep learning at SMK Negeri 1 Kebumen as a strategic effort to support the achievement of Sustainable Development Goals (SDGs), particularly in the domain of inclusive and quality education. **Theoretical framework:** The research is grounded in an integrative theoretical framework that combines Islamic educational philosophy—centered on tauhid, akhlakul karimah, and ‘ilm nafi’—with modern pedagogical approaches, including Bloom’s Taxonomy and the Merdeka Curriculum. **Literature review:** The literature review highlights previous findings on the effectiveness of AI in improving student engagement and learning outcomes, while also acknowledging concerns regarding ethical dilemmas, digital dependency, and algorithmic bias. However, limited studies have addressed the intersection between AI, deep learning, and Islamic values in vocational education settings, especially in the context of Indonesian Islamic education. **Methods:** A qualitative descriptive method was used in this study. Data were collected through classroom observations, semi-structured interviews with four Islamic education teachers and nine students from different grade levels, as well as document analysis of teaching modules, digital infrastructure usage logs, and relevant budgeting records. This triangulated approach ensured a holistic understanding of the phenomenon under investigation. **Results:** Findings reveal that the integration of AI tools such as ChatGPT, Gemini, and virtual reality technologies significantly enhances student motivation, critical thinking, and participation in Islamic education classes. Lesson designs rooted in Bloom’s Taxonomy foster higher-order thinking skills, while AI tools help contextualize and personalize the learning experience. Nevertheless, the study also identifies potential risks, including over-reliance on AI, lack of ethical literacy, and challenges in maintaining Islamic identity in a tech-driven environment. **Implications:** This study has important implications for educators and policymakers, underscoring the need to implement AI-driven education within an ethical and religious framework. **Novelty:** The novelty of this research lies in its pioneering investigation of how Islamic values can guide and coexist with AI-based pedagogy to promote equitable and quality education aligned with global educational goals.

Keywords: sustainable development goals, islamic values, deep learning, artificial intelligence, islamic religious education.

INTRODUCTION

SMK Negeri 1 Kebumen is committed to forming students who are competent and able to compete globally in the field of software engineering. The school integrates deep learning based on artificial intelligence to improve the quality of education. The capacity of teachers to implement this strategy is also continuously improved. Haryoku emphasized the importance of improving teacher competence and implementing deep learning in the teaching and learning process [1].

The high number of repeating students indicates a problem in the learning process. Data from the Central Bureau of Statistics in 2024 recorded the repetition rate at the primary school level or equivalent at 4.06%, higher than the junior high school level or equivalent at 2.81%, and senior high school or vocational or equivalent at 2.29% [2]. The causes include low motivation to learn, ineffective teaching methods, and unfavorable socioeconomic conditions.

Deep learning can be a solution to improve student understanding. This method encourages exploration, reflection, and application of concepts in real life [3]. Students not only memorize but also connect concepts and think at a higher level [4]. This strategy incorporates knowledge, critical thinking, creativity, cooperation, use of technology, project-based learning, and collaboration [5].

According to Jon F. Wergin in *Deep Learning in a Disorienting World*, deep learning emphasizes students' awareness and active engagement through eight important aspects, namely, learning consciously, daring to face confusion, reflecting on old knowledge, learning through social interaction, realizing the influence of power, using art as a medium, balancing comfort and challenge, and building an open mindset and curiosity [6].

The integration of artificial intelligence strengthens the deep learning process with five main components [7]. These mentioned components include learning personalities, adaptive learning, facilitating collaboration and discussion, providing feedback and assessment, and supporting independent learning.

Deep learning is not a new curriculum but rather a strengthening of the values that have been stated in the Merdeka Curriculum. However, its implementation faces challenges such as teacher readiness and limited resources [8]. The Minister of Primary and Secondary Education emphasized that deep learning aims to create a mindful, joyful, and meaningful learning process. In this context, artificial intelligence technology plays an important role in helping students understand the material in a deeper and more relevant way [9].

Artificial intelligence technology supports interactive learning and enhances students' skills. It enables the enhancement of cognitive and social skills and expands access and flexibility of learning [10]. Artificial intelligence works by mimicking the way humans think, learning data from images, text, and sound through a deep learning process. This technology can apply experience to logic, analysis, and problem-solving [11].

In the context of Islamic education, the use of artificial intelligence technology must uphold religious and cultural values. Materials such as the Quran, hadith, tafsir, and Islamic history require a specialized approach when presented in digital formats [12]. The central role of Islamic Religious Education in supporting deep learning processes is to shape students into religious and morally upright individuals. The integration of Islamic values into learning aims to instill honesty, discipline, responsibility, and social awareness. The cultivation of these values has a positive impact on student's spiritual, moral spiritual, character, and socio-emotional development [13]. Artificial intelligence can be an effective tool, but it still requires supervision to prevent the dissemination of incorrect information. Therefore, comprehensive understanding should be prioritized over rote, memorization enabling students to apply Islamic values in real-life contexts.

An educational approach to Islamic education that integrates deep learning and artificial intelligence aligns with the spirit of sustainable development. Islamic educational institutions incorporate SDGs into their curricula to promote a holistic approach to sustainable development. This includes integrating Islamic values with modern educational practices to produce graduates who are aware of sustainability [14]. Islamic higher education institutions play a strategic role in supporting SDGs through curriculum integration, sustainability-based research, and community empowerment programs [15].

The integration of SDGs into Islamic teaching materials has been observed, with a strong emphasis on social inclusion; however, environmental and economic dimensions remain underrepresented [16]. At the same time, the integration of Islamic values and SDGs in education shows promise, but challenges remain, such as limited understanding of SDGs, funding constraints, and resistance to change. Addressing these challenges requires strengthening the curriculum, promoting educational innovation, and enhancing cross-sector collaboration.

This approach not only enriches educational content but also prepares future generations to address global sustainability challenges effectively. This study builds on previous research on the importance of deep learning, focusing on the integration of artificial intelligence into Islamic Religious Education at SMK. This research aims to formulate a more contextual PAI learning model that is relevant to current developments while remaining grounded in spiritual values. The findings of this research are expected to contribute meaningfully to the development of innovative Islamic Religious Education learning and serve as a reference for other schools in the wise use of technology.

LITERATURE REVIEW

Deep learning based on artificial intelligence is an approach that combines logical thinking with learning through imitation. This approach is starting to be widely studied in the field of artificial intelligence, especially in imitation learning, which shows its effectiveness in transferring skills from experts to learning agents through behavioral examples. A multi-intelligence collaborative method that combines different types of intelligence to improve imitation learning performance has been proposed [17]. These findings strengthen the argument that learning systems can be optimized through intelligent and structured imitation strategies.

Imitation learning can be applied to robotics systems without the need for precise posture data [18], [19]. This means that this approach is quite flexible and can be used in various conditions, including unstructured environments. Meanwhile, research by Yan et al. shows the potential of unsupervised learning in transferring human movements to robots. This approach reduces reliance on labeled data, making it more efficient in practical applications [20].

The integration of deep learning in imitation learning enables systems to understand complex data more effectively [21]. This opens up opportunities to apply similar approaches in the field of education, especially for subjects such as Islamic Religious Education. Unfortunately, most research is still limited to technical applications, such as robot navigation and industrial system control. This gap indicates the need for further exploration in the context of formal education.

In the perspective of Islamic education, learning through imitation is not a new concept. The example of the Prophet Muhammad (SAW) is a key foundation in character and moral education. Scholars such as Imam Al-Ghazali emphasized the importance of imitating the behavior of pious people in the educational process. This is also reinforced by the views of the Syafii and Maliki schools, which prioritize appreciation and direct practice in understanding Islamic teachings.

The implementation of deep learning based on artificial intelligence at SMK Negeri 1 Kebumen has great potential. This approach not only allows students to imitate good behavior consciously but also encourages them to think critically about the values learned. By combining cognitive and affective elements, learning Islamic Religious Education becomes more contextual and meaningful. In addition, this approach is also in accordance with the characteristics of students at the SMK level who are closer to the world of practice and attitude formation.

As emphasized by Asdlori and Yahya, integrating Islamic values into modern learning approaches provides a crucial foundation for achieving sustainable education. Islamic religious education plays a strategic role in internalizing the SDGs through the spiritual, social, and moral values taught to students [22].

Integrating SDG values into Islamic religious education is a strategic step in equipping students to face global challenges. Through an artificial intelligence-based deep learning approach, students not only develop a deeper understanding of religious teachings but also connect them with issues of sustainability and progress. Artificial Intelligence technology supports contextual and adaptive learning, enabling Islamic values and global development goals to be meaningfully applied in students' lives [23].

However, the use of Artificial Intelligence in education must be approached with caution due to its potential negative impacts. Overreliance on technology can weaken critical thinking and independent learning abilities [24]. In Islamic education, the application of AI without being grounded in Islamic values risks distorting religious understanding, reducing student creativity, and significantly altering the role of teachers. Ethical challenges and the risk of misinterpreting religious texts must also be anticipated. Therefore, strict supervision and ethical guidelines are needed to ensure that the application of AI remains in line with Islamic teachings [25].

Thus, deep learning based on artificial intelligence integrated with Islamic values is not only pedagogically relevant but also aligned with the core principles of Islamic education. With proper implementation, this approach can serve as an innovative strategy to enhance the quality of Islamic Religious Education in secondary schools while addressing global challenges and supporting the achievement of the Sustainable Development Goals.

METHODOLOGY

This study uses a descriptive qualitative approach to describe Islamic values and artificial intelligence-based deep learning at SMK Negeri 1 Kebumen that support the achievement of SDGs in the field of quality and equitable education. This approach was chosen to gain an in-depth understanding of the learning process and student responses in a real context. The research subjects consist of four Islamic education teachers and nine students selected purposively, representing each grade level.

The research was conducted directly in the field with intensive coordination and was conducted with the main informants. Data collection techniques included observation of the learning process of Islamic Religious Education and students' understanding after participating in artificial intelligence-based learning. In-depth interviews were conducted with four teachers and nine students. In addition, documentation in the form of teaching modules, electronic facility archives, and budget data that support the implementation of learning was collected as complementary data.

The research instrument was developed independently by the researcher concerning relevant theories and previous instruments. Data analysis was carried out through three stages, namely: data reduction to filter information according to the research focus, systematic data presentation, and verification through overall conclusion drawing. Data

were categorized as positive if they showed an increase in critical thinking skills, effectiveness of learning evaluation, speed of feedback, and learning personality. On the other hand, the data were categorized as negative if there is a dependency on technology, decreased self-reflection, and the emergence of ethical or social issues in learning.

This research took place from March to May at SMK Negeri 1 Kebumen. The location was chosen because the school has successfully implemented deep learning based on artificial intelligence, proven through various achievements in the digital field. Data validity was maintained through the triangulation of sources and techniques. The researcher also conducted a member check by confirming the findings with the informants to ensure the suitability of the data obtained with the conditions in the field.

Table 1. Research Methods

No	Research Aspects	Description
1	Research Context	The research was conducted at SMK Negeri 1 Kebumen, which has implemented artificial intelligence-based deep learning in Islamic Religious Education.
2	Research Objectives	Describing the integration of Islamic values and AI-based deep learning in supporting the achievement of SDGs, particularly the goal of quality and equitable education.
3	Research Approach	Using a descriptive qualitative approach to gain an in-depth understanding of the learning process and student responses in a real context.
4	Population and Sample	The population consisted of teachers and students at SMK Negeri 1 Kebumen. The sample was selected purposively: four Islamic Religious Education teachers and nine students from various grade levels.
5	Data Collection Methods	The study utilized observations of the learning process, in-depth interviews with teachers and students, as well as documentation of teaching modules, electronic records, and other supporting data.
6	Data Analysis	Analysis was conducted through data reduction, systematic data presentation, and verification through conclusion drawing. Data was categorized as positive or negative based on specific indicators.
7	Research Findings	This study found that AI-based deep learning instructional planning, aligned with Bloom's Taxonomy and the Merdeka Curriculum, enhanced learning quality supported by technologies like ChatGPT, Gemini, and virtual reality, successfully increasing student participation, motivation, and critical thinking skills. However, AI utilization also poses risks such as technological dependency, algorithmic bias, and ethical violations. Therefore, in Islamic education, the use of AI must be balanced with the values of tauhid, akhlakul karimah, and 'ilm nafi'.
8	Conclusion	This study emphasizes that the integration of AI in PAI learning can significantly improve the quality of education and support the achievement of SDG Goal 4, namely quality and equitable education. However, this integration must be done wisely, taking into account Islamic values and academic ethics.
9	Suggestion	Recommendations for future research include conducting a more in-depth examination of the long-term impact of AI use on students' religious character and independence, developing AI-based learning models rooted in Islamic values, and expanding

the scope of research to other educational levels and institutions to make the results more applicable and representative overall.

RESULTS AND DISCUSSION

Based on the results of interviews with four Islamic Religious Education teachers, lesson planning is carried out by strengthening students' cognitive abilities gradually, starting from the basic level to the high level according to Bloom's taxonomy, including the application of problem-solving strategies to encourage active participation. The material is arranged in the form of simulations that represent real life to make it more contextual and easy to understand, with sources from teaching modules, videos, e-books, and articles. The curriculum is designed flexibly using the Merdeka Belajar curriculum, adapted to environmental conditions, and aims to create fun and meaningful learning. Planning also includes the use of adaptive learning systems such as Google DeepMind or IBM Watson to develop modules that suit students' learning speed. In addition, students' needs are analyzed through AI-based assessment, tools equipped with a digital content recommendation system, and the development of a PAI chatbot as an adaptive learning support medium that suits students' characteristics.

From the teaching module, the implementation of deep learning based on artificial intelligence at SMK Negeri 1 Kebumen is implemented through various active learning models, such as problem-based learning, project-based learning, discovery learning, and inquiry-based learning. The learning process is supported by the use of technology, including the Merdeka Belajar platform, belajar.id account, Meta AI, chatbot, ChatGPT, Gemini, Canva, Quran speech recognition application, and Virtual Reality medium. The Islamic Religious Education teacher acts as a facilitator as well as a filter for the material so that it remains in line with Islamic values and the needs of students. School support is shown through the provision of 220 computer units, teacher training, and adequate internet connection so that technology-based learning can be carried out optimally.

The implementation of the artificial intelligence-based deep learning approach in Islamic Religious Education lessons includes:

1. Teachers choose deep topics such as creed, morals, fiqh, and Islamic history for more serious and contextualized teaching.
2. Creating technology-based learning by organizing digital content, developing an Islamic religious education chatbot, and using a learning system that can adjust students' learning speed.
3. Teachers deliver material with the help of artificial intelligence through simulations that link religious concepts with real-life experiences.
4. Teachers present contextual problems, and then learners are asked to formulate and discuss them collaboratively to train critical thinking skills.
5. Learners present the results of their thinking as a form of strengthening communication skills.
6. The teacher assesses students' progress, provides quick feedback, and creates a fun and meaningful learning atmosphere.

In the teaching module, teachers evaluate students through diagnostic, formative, and summative assessments using observation, assignment, and written test techniques. In addition, teachers also evaluate achievement through self-reflection by setting achievement indicators overall, deep learning contributes to the improvement of learning quality, broadening students' horizons, and developing critical thinking, reflection, and problem-solving skills to assess whether the learning objectives have been achieved or not.

The assessment results of the implementation of deep learning based on artificial intelligence show the impact on students, including increased enthusiasm, active involvement in learning, and the ability to balance the learning process well. Students are more interested, understanding becomes faster, and learning feels more interesting. In addition, teachers are more free to explore learning methods. Overall, deep learning contributes to the improvement of learning quality, broadening students' horizons, and developing critical thinking, reflection, and problem-solving skills.

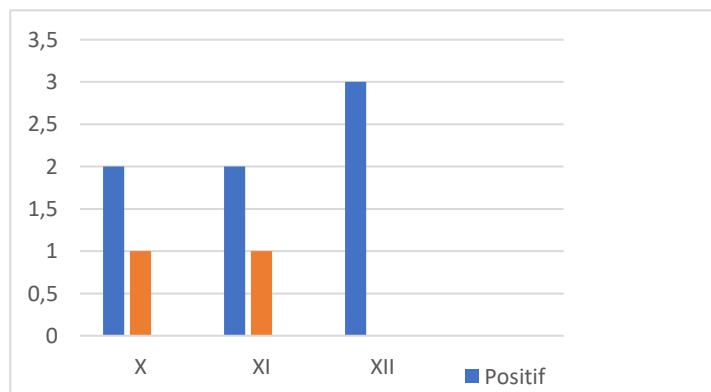


Figure 1. Impact of Artificial Intelligence

Out of the nine students involved in artificial intelligence-based deep learning, seven showed increased participation, enthusiasm, and engagement in the learning process. This approach is considered effective in simplifying and accelerating the understanding of the material, especially when the explanation from the teacher has not been fully understood. In addition, some students independently used this approach to find solutions to learning problems outside of formal learning time. However, two students gave negative feedback, citing concerns about the potential for instant gratification.

Planning Deep Learning Approach Based on Artificial Intelligence

Lesson plans are prepared by teachers in stages according to Bloom's taxonomy. Bloom's taxonomy as a pedagogical tool is intrinsically dedicated to the planning and evaluation of the educational process, starting from strengthening basic abilities such as remembering and understanding religious concepts to higher-level abilities such as analyzing, evaluating, and creating. Teachers consistently apply problem-solving strategies and contextual approaches to encourage active student participation. This reflects the implementation of the six cognitive domains in Bloom's taxonomy, which aims to improve the quality of the learning process and encourage students to become active and reflective learners [26].

This planning approach is aligned with the objectives of the independent curriculum, which is more relevant and interactive through an emphasis on project-based learning. The independent learning curriculum provides space for students to actively explore factual issues, as well as structure simple yet in-depth learning. Thus, the independent curriculum also strengthens the application of Bloom's taxonomy in the classroom, creating a learning process that is fun, meaningful, and centered on developing student competencies holistically [27].

As a concrete implementation of the plan, the preparation of teaching modules is an important aspect that must be designed systematically. In preparing teaching modules as part of learning planning, it is necessary to pay careful attention to the components of learning resources, strategies, and learning media used. Learning resources are systems or sets of materials that are intentionally prepared to facilitate students' understanding of

learning materials. The utilization of Internet technology currently provides wide and easy access for teachers and students in reaching various types of learning resources [28].

In the context of learning to plan with an artificial intelligence-based deep learning approach, the materials are arranged in the form of simulations that represent real-life situations to make them more contextual and easy to understand. These resources include teaching modules, learning videos, e-books, and online articles, which reflect the utilization of digital technology to support interactive, relevant, and meaningful learning processes.

To ensure that materials truly address the needs of learners, planning should also be based on an analysis of student characteristics. In order to maximize the potential of human resources through education, educators must understand the interests, talents, and learning needs of individual students [29]. Utilizing adaptive learning systems such as Google DeepMind or IBM Watson is one form of integration of deep learning with artificial intelligence. This system is able to adjust the teaching module to the speed and learning style of each learner. Needs analysis is conducted through AI-based assessment tools, which are then strengthened with a digital content recommendation system and the use of a PAI chatbot as an adaptive supporting media.

Although the planning is in accordance with the deep learning approach based on artificial intelligence, it needs to focus on the effectiveness of the application of artificial intelligence technology in adjusting the material to the needs of students, as well as the readiness of teachers to manage project-based learning and digital technology optimally.

Implementation of Deep Learning Approach Based on Artificial Intelligence

The results of the research at SMK Negeri 1 Kebumen show that Islamic Religious Education teachers have successfully integrated the active learning approach systematically through models such as discovery learning, inquiry learning, problem-based learning, and project-based learning. These models are proven to be able to increase students' active participation and support a more meaningful understanding of the material [30]. This learning process that combines simulation and contextual experience reflects the real implementation of the artificial intelligence-based deep learning approach that places students as the main subject of learning [31].

The successful implementation of artificial intelligence-based deep learning is inseparable from the strategic role of teachers in designing relevant and effective learning. The main challenge faced by teachers is how to deliver material while maintaining the essence of Islamic teachings and reaching the diverse learning needs of students [32]. For this reason, teachers are required not only as teachers but also as facilitators who are able to generate learning motivation, adjust approaches, and utilize technology optimally.

In this context, the utilization of artificial intelligence-based technologies such as ChatGPT and Gemini becomes an important part of the learning strategy. These two devices fall under the category of artificial narrow intelligence, which is a type of artificial intelligence designed to accomplish specific tasks in a limited way [33]. Their function in learning is as text assistants capable of simplifying material, answering questions, and stimulating discussions. While lacking the general awareness of humans, these devices are capable of creating interactions that encourage active and reflective exploration of information, in line with the principles of deep learning-based artificial intelligence.

The implementation of artificial intelligence in learning Islamic Religious Education at SMK Negeri 1 Kebumen is also relevant to the ideas of Sperling and his colleagues, who emphasize the importance of artificial intelligence literacy among teachers. Teachers are not only required to understand technology but also to act as content curators who ensure that all materials remain aligned with Islamic values [34]. This confirms that the success of technology integration depends not only on the sophistication of the tools but also on the ability of teachers to manage and contextualize the technology ethically and pedagogically.

In addition to text-based tools, the use of virtual reality in learning Islamic history at SMK Negeri 1 Kebumen shows the application of interactive visual technology, which is also included in the artificial intelligence category. This technology combines digital visualization, motion tracking, and real-time interaction controlled by algorithms, thus creating an immersive learning experience [35]. In practice, virtual reality helps students understand history contextually as if they were directly involved in the events of Islamic history.

According to this theory, the implementation of technology in learning at SMK Negeri 1 Kebumen can be analyzed as follows:

Table 2. Classification Technology

No	Technology	Category	Classification by Rony
1	Merdeka Belajar Platform	A digital learning platform providing content access	Excluding ANI
2	Belajar.Id Account	Account system for learning platform access	Excluding ANI
3	Meta AI	Meta's (Facebook) AI system	Including ANI
4	Chatbot	Automated program for communication with users	Including ANI
5	Chat GPT	AI-based on natural language processing	Including ANI
6	Gemini	Multimodal generative AI	Including ANI
7	Canva	Digital graphic design application	Excludes ANI unless using the AI feature
8	Quran speech recognition application	Voice recognition application for Quran recitation	Including ANI
9	Virtual reality	3D environment simulation technology in learning	Including ANI

On the other hand, not all technologies used in learning can be categorized as artificial intelligence. For example, graphic design apps like Canva do not fully fall into the artificial intelligence category. However, certain features such as automatic authoring and text-based image generators show that Canva has started to integrate artificial narrow intelligence components into its platform. This supports the efficiency and effectiveness of teachers and students in designing visual teaching materials.

From these findings, it can be concluded that the utilization of technology in learning at SMK Negeri 1 Kebumen reflects the selective adoption of smart technology. Only devices such as Meta, chatbot, ChatGPT, Gemini, Quran speech recognition, and Virtual Reality can be explicitly classified as artificial intelligence, as they have intelligent algorithm-based automation elements. Nonetheless, their successful use depends on how teachers design, select, and direct such technologies to remain in line with learning objectives and Islamic educational values.

Evaluation of Artificial Intelligence-Based Deep Learning Approach

The integrated application of diagnostic, formative, and summative assessments is a comprehensive, and sustainable evaluation strategy. These three types of assessment complement each other in describing the process and results of student learning as a whole.

Diagnostic assessment serves to map students' initial abilities, formative assessment monitors progress during the learning process, and summative assessment evaluates the final achievement of learning [36]. This comprehensive approach is in line with Fuadiy's view [37]. This emphasizes the importance of a deep understanding of the concept of evaluation to create assessments that reflect the learning process, not just the result.

The main function of diagnostic assessment is to identify initial readiness and learning barriers that students may face. This information helps teachers in developing targeted learning strategies [38]. In addition, this assessment is important in culture-based learning because it provides a deeper understanding of students' background context. However, implementing diagnostic assessments requires teachers' analytical skills and technical readiness. Without adequate training, the effectiveness of these assessments may decrease.

Unlike diagnostic assessment, formative assessment is carried out on an ongoing basis throughout the learning process. The aim is to monitor student progress in real-time and provide constructive feedback. This allows teachers to adapt learning strategies to be more responsive to classroom dynamics.

In the context of culture-based learning, formative assessment can also build students' emotional connection to the subject matter. However, its effectiveness is highly dependent on teacher consistency and clarity of assessment indicators. Without these two things, formative assessment has the potential to produce biased or unrepresentative assessments.

Summative assessment serves as the final measure of student learning achievement. It is usually applied in the form of a final exam, project assignment, or portfolio. The data obtained from summative assessment becomes the basis for educational decision-making, such as graduation or student ranking. Despite its important function, summative assessments often cause psychological distress to students. Excessive focus on the final result has the potential to ignore the learning process experienced by students and cause anxiety if used as the only indicator of success [39]. Therefore, the use of summative assessments needs to be balanced with formative and diagnostic approaches so that the evaluation remains fair and holistic.

From the description above, it can be concluded that each type of assessment has its advantages and disadvantages. To create an effective and sustainable learning evaluation system, the three types of assessment should ideally be used in an integrated manner: diagnostic assessment as a starting point for mapping needs, formative assessment as a process monitoring tool, and summative assessment as a reflection on the final learning outcomes.

The selection of assessment instruments, such as observations, assignments, and written tests, should be tailored to the characteristics of the material and students' learning styles. In the digital era, technology integration is also important to improve evaluation efficiency.

The utilization of information and communication technology (ICT), including digital platforms and AI, strengthens the assessment process. However, its effectiveness depends largely on teacher readiness and training. The Merdeka Curriculum provides space for teachers to choose assessment techniques that suit the needs of learners [40]. However, the complexity of the evaluation system is often a challenge for teachers, so periodic reflection is needed to keep assessment practices focused [41].

The learning evaluation system must consider the uniqueness and developmental stage of each student. Uniform evaluation cannot accommodate the diversity of learners. Therefore, a flexible and inclusive approach to assessment is needed. The aim is to create a learning environment that is fair and adaptive to the individual needs of students [42]. The integration of diagnostic, formative, and summative assessments in an integrated manner is an ideal solution for realizing an evaluation system that is humanistic and oriented toward the overall development of learners.

Impact of Artificial Intelligence-Based Deep Learning Approach

In today's digital era, technology has become one of the main sources of knowledge and reference in learning activities. The integration of technology into education aims to encourage the implementation of more varied learning and equip students with skills in utilizing technology to complete their various academic tasks [43].

The findings in the field, the implementation of a deep learning approach based on artificial intelligence showed a positive impact on the learning process, including the increased enthusiasm of students, active involvement during learning, and the development of critical thinking, reflection, and problem-solving skills. In addition, teachers also gain flexibility in exploring more varied and contextualized learning strategies.

This is in line with the view that deep learning based on artificial intelligence, through technologies such as intelligent tutoring systems and natural language processing, is able to present learning materials that are adaptive to individual learning styles and needs [44]. Such learning refers to three main principles, namely joyful learning, mindful learning, and meaningful learning, which place learners as active subjects in the learning process. When learning is designed to be fun, contextually relevant, and encourages full awareness in the cognitive process, learning outcomes become more optimal both in terms of motivation and mastery of competencies [45]. Therefore, the integration of artificial intelligence in the deep learning approach contributes significantly to improving the overall quality of learning.

Quality education requires the development of higher-order thinking skills, including critical thinking, which is essential for generating innovative solutions to various problems. In the context of 21st-century learning, the integration of media and technology supports the 4C skills of critical thinking, creativity, communication, and collaboration, alongside digital and information literacy [46]. This aligns with the SDGs' goal of ensuring inclusive, equitable, and quality education. Findings in the field show that the integration of this approach encourages students to think critically, which not only improves the quality of learning but also contributes to the achievement of other SDG goals, especially in the context of quality and equitable education in developing countries [47].

The research results showed that there were two students who gave negative responses. They expressed concerns about the potential dependency on instant solutions provided by artificial intelligence. This concern is in line with the theoretical view that although artificial intelligence can enhance learning independence through personalization and efficient access to information, its use also carries risks. Such risks include a tendency towards plagiarism, intellectual laziness, and decreased analytical skills due to reliance on quick answers from machines [48].

Therefore, the use of AI in education must be accompanied by an approach that promotes academic ethics and critical thinking skills while integrating Islamic values to avoid undermining long-term learning objectives. To support this, teachers need adequate training, appropriate curriculum development, and attention to privacy issues and technology misuse [49].

Internalization of the Value of Islamic Education in Deep Learning Based on Artificial Intelligence

Although the use of Artificial Intelligence in deep learning offers various advantages, its application in Islamic education presents risks that must be carefully anticipated. One of the primary concerns is the potential dehumanization of the learning process, where interactions that are too dependent on machines can reduce empathy, compassion, and emotional connections between teachers and students. These are fundamental aspects of Islamic education [50]. Reliance on automated systems also risks neglecting spiritual and moral dimensions, thereby undermining the essence of holistic character development.

Other risks include the potential for algorithmic bias and content that does not align with Islamic values. Systems developed without reference to religious principles may generate material that contradicts Islamic beliefs and ethics [51]. Additionally, the uncontrolled use of Artificial Intelligence technology can foster excessive dependence, ultimately weakening the ability for reflection, contemplation, and remembrance as spiritual learning methods in Islam [52].

As a solution, Islamic educational values must be used as the primary filter and guideline. The principle of tawhid should serve as the foundation, ensuring that all technological applications must be directed toward drawing closer to Allah Subhanahu wa Ta'ala, not replace His role in education. Values of akhlakul karimah, such as honesty, justice, and compassion, must be used as benchmarks in the development and utilization of Artificial Intelligence technology to align with Islamic ethics.

The concept of beneficial knowledge ('ilm nāfi') in Islamic tradition teaches that technology must provide tangible benefits for the community, not merely technological achievements devoid of meaning. The principle of moderation in religion can also serve as a guideline to ensure that the use of technology is neither rejected extremely nor accepted without critical scrutiny [53].

The process of internalizing Islamic values in AI-based learning requires comprehensive curriculum integration. Every subject must be filtered through Islamic values to ensure the Islamic identity of students is maintained [54]. The formation of an Islamic digital character needs to be guided through ethical learning, such as maintaining privacy, not spreading false information, and utilizing technology for good purposes [55].

The role of teachers is very strategic as facilitators of values. Teachers serve as a link between technological advancement and the spirituality of students, ensuring that the use of Artificial Intelligence technology does not negate the essence of Islamic education. Therefore, learning content developed with this technology must explicitly incorporate Islamic values, such as verses from the Qur'an, hadiths, and the exemplary conduct of Islamic figures. With a comprehensive and sustainable approach, the integration of Islamic educational values in Artificial Intelligence-based learning can be optimized to strengthen the religious and moral character of students.

CONCLUSION

This research shows that artificial intelligence-based deep learning planning based on Bloom's taxonomy and aligned with the independent curriculum can significantly improve the quality of the learning process. Teachers are able to design contextual and adaptive project-based learning strategies through the utilization of digital technology and artificial intelligence, such as ChatGPT, Gemini, and virtual reality. This planning takes into account individual student characteristics with the help of an adaptive learning system, which allows the personalization of teaching materials according to student's learning styles and needs. In practice, the application of artificial intelligence at SMK Negeri 1 Kebumen has successfully encouraged active participation, increased learning motivation, and developed students' critical and reflective thinking skills. The integrated diagnostic, formative, and summative assessment system also strengthens the learning process as a whole so that the evaluation does not focus only on the final result but also reflects a holistic and sustainable learning process. The application of Artificial Intelligence (AI) technology in deep learning approaches contributes significantly to improving the quality of education and achieving the goals of inclusive and equitable learning. This technology can promote active student engagement, enhance critical thinking skills, and provide educators with greater flexibility to design adaptive and contextual learning strategies. However, without proper oversight, the use of AI can lead to negative consequences such as overdependence, intellectual stagnation, algorithmic bias, and violations of academic ethics. In the context of Islamic education, the use of AI must align with core Islamic values such as tawhid, akhlakul

karimah, and ‘ilm nāfi’. Internalizing these values requires a holistic integration within the curriculum, positioning teachers as spiritual facilitators and ensuring the development of content grounded in Islamic ethics. This approach is in harmony with the Sustainable Development Goals (SDGs), particularly Goal 4, which aims to ensure inclusive, equitable, and quality education. Therefore, the strategic integration of technology and Islamic values can strengthen students' religious character while supporting the advancement of holistic and human-centered sustainable education. Additionally, teachers require adequate training, proper curriculum development, and awareness of privacy concerns and potential misuse of technology.

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Author Contribution

All authors contributed equally to the research conceptualization, data analysis, and manuscript preparation. Scholars from Universitas Islam Negeri Salatiga and Iğdir Üniversitesi collaboratively examined Islamic values in AI-based learning implementation at SMK Negeri 1 Kebumen for educational SDGs.

Conflicts of Interest

In writing this research, starting from the beginning to the research results, there is no conflict of importance, so the research results are very objective, exist, and can be accounted for scientifically

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