QUBAHAN ACADEMIC JOURNAL
VOL. 5, NO. 1, March 2025
https://doi.org/10.48161/qaj.v5n1a1498

SWOT Analysis of AI Integration in Islamic Education: Cognitive, Affective, and Psychomotor Impacts

Andri Nirwana AN [1,*], Alfan Rifai [1], Mohamad Ali [1], Triono Ali Mustofa [1], Viky Nur Vambudi [1], Muh. Nur Rochim Maksum [1], Mush'ab Umar Budihargo [2]

[1] Department of Islamic Education,Faculty of Islamic Studies,Universitas Muhammadiyah Surakarta,Surakarta, Jawa Tengah 57162, Indonesi;
[2] Department of Islamic Studies, Faculty of Sharia, Qassim University, Mulayda, Prov. Qassim 52554, Saudi Arabia.

* **Corresponding author:** andri.nirwana@ums.ac.id.

ABSTRACT: Artificial Intelligence (AI) has emerged as a transformative force in education, including Islamic religious education, where it offers new opportunities to enhance learning methodologies. This study aims to analyze the integration of AI in Islamic education by evaluating its strengths, weaknesses, opportunities, and threats (SWOT analysis) while categorizing its impact on cognitive, affective, and psychomotor domains based on Bloom's Taxonomy. A qualitative approach using library research methodology was employed, with data collected from academic journals, books, and research reports, analyzed through a SWOT framework. The findings indicate that AI significantly enhances cognitive and psychomotor learning in Islamic education. AI-based tools, such as ClassPoint AI, AI Chatbots, and Squirrel AI, contribute to knowledge retention, adaptive learning, and skill-based training in areas like Quranic recitation, prayer practices, and Islamic jurisprudence. However, AI remains limited in fostering affective learning, as it lacks human emotional intelligence and the ability to provide moral and ethical guidance, which are essential in Islamic education. The study also reveals challenges such as ethical concerns, technological disparities, and socio-cultural resistance in integrating AI into religious studies. Despite these limitations, AI presents significant opportunities, particularly in remote learning, personalized education, and accessibility for underserved communities. This research provides a structured evaluation of AI's role within Bloom's Taxonomy, offering insights into AI's potential and limitations in Islamic education. The study contributes theoretically by linking AI-driven education with pedagogical principles, while practically, it guides educators and policymakers in strategically implementing AI while preserving Islamic ethical values. The study concludes that while AI enhances knowledge acquisition and skill-based learning, human educators remain essential for moral and ethical development. Future research should focus on developing ethical AI models, hybrid AI-human teaching approaches, and AI-driven affective learning systems to bridge gaps in AI-assisted moral and spiritual education.

Keywords: artificial intelligence, Islamic religious education, bloom's taxonomy, cognitive affective psychomotor, AI-driven learning.

I. INTRODUCTION

In this modern era, people are starting to get familiar with a technology called artificial intelligence[19, 62, 103]. This artificial intelligence is a technology created to behave like a human who can think and act rationally, meaning that it can carry out a task to achieve certain goals[26, 47, 73]. The development of artificial intelligence

creates new challenges in the educational process as artificial intelligence can provide various conveniences in all things [17, 28, 61, 69, 91]. Given the variety of conveniences offered by increasingly advanced technology, people tend to make greater efforts to achieve something, especially educational goals [60]. If the convenience that artificial intelligence provides is not used properly, it can increase crime rates and reduce students' enthusiasm for learning [52].

Artificial intelligence is expected to replace 300 million full-time jobs [121,122]. According to a global survey by the McKinsey website, which involved 1,684 companies around the world from various fields, artificial intelligence has begun to be widely used in various industries around the world. It was found that 60% of all survey participants used AI to increase their work's effectiveness [27, 82, 95]. Artificial intelligence has great potential and can be used in various areas, especially in the field of education, especially in Islamic religious education[128] . Artificial intelligence is considered to have opportunities that can be used to maximize learning in Islamic religious education [68, 92, 128].

According to Islamic religious education, artificial intelligence has existed since the time of the Prophet Musa peace be upon him, when one of his people, namely the Samiri, made a metal cow statue that could speak, as was said in Q.S. Thaha verse 88 is mentioned (Out of the fireplace) he (Samiri) brought out for them a statue of a calf with a body and a voice, and they said: "This is your God and the God of Moses, but he (Moses) has it forget [97]. Which ultimately led to Prophet Musa's people denying Prophet Musa's teachings and then worshiping the Samiri's cow. This story is intended to remind Muslims that in ancient times, the existence of artificial intelligence in the form of a talking cow statue made people careless [55]. The consequences of glorifying artificial intelligence so much that they obediently worship the cow. Ultimately, today there is a need for in-depth research into artificial intelligence to be cautious in its use and to be able to recognize the various opportunities and challenges that arise from the use of artificial intelligence.

Islamic education is deeply rooted in religious traditions, aiming to foster intellectual, spiritual, and moral development. With the advancement of technology, Artificial Intelligence (AI) has emerged as a transformative tool that can enhance learning experiences across various educational settings, including Islamic religious education. While AI has been extensively studied in general education, research on its specific integration into Islamic education remains scarce. Most existing studies explore AI's role in cognitive learning and skill development, but very few focus on how AI can impact affective and psychomotor aspects, which are fundamental components of Islamic pedagogy. Several studies have discussed AI's potential to personalize learning, automate administrative tasks, and support cognitive development in education[37, 78, 130]. However, there is a noticeable gap in understanding how AI can be effectively adapted to Islamic educational settings while maintaining Islamic ethical and pedagogical principles. AI-driven technologies, such as ClassPoint AI, AI-powered chatbots, and Squirrel AI, have demonstrated cognitive and psychomotor learning benefits, particularly in Quranic recitation, Islamic jurisprudence, and prayer practice. Nevertheless, AI lacks emotional intelligence and the ability to provide moral and spiritual guidance, raising concerns about its effectiveness in fostering affective learning, which is critical in Islamic education [40, 106]. Furthermore, previous literature fails to systematically evaluate AI's role across different educational domains in Islamic education, particularly through structured frameworks such as SWOT analysis and Bloom's Taxonomy. This study addresses these gaps by systematically analyzing AI's strengths, weaknesses, opportunities, and threats in Islamic education while classifying its impact into cognitive, affective, and psychomotor domains. Unlike previous research that predominantly examines AI's benefits in knowledge acquisition and teaching automation, this study focuses on AI's ethical considerations, socio-cultural implications, and pedagogical limitations in the context of Islamic education.

Although there have been many studies on the application of Artificial Intelligence (AI) in education, research on AI in the context of Islamic education remains limited. Most previous studies have focused only on the benefits of AI in cognitive and psychomotor aspects, with little exploration of how AI can support the affective aspect, which is a crucial element in Islamic education. Furthermore, there are still few studies that utilize the SWOT framework in-depth to analyze the opportunities and challenges of AI in Islamic education based on Bloom's Taxonomy. Therefore, this study offers a new perspective by evaluating the implications of AI in cognitive, affective, and psychomotor aspects in Islamic education while providing implementation strategies aligned with Islamic principles.

By conducting a comprehensive SWOT analysis and applying Bloom's Taxonomy, this study provides a structured evaluation of AI's role in Islamic education, offering practical insights for educators, policymakers, and Islamic scholars. The findings of this study will help develop strategies for the ethical and effective integration of AI, ensuring that its implementation aligns with Islamic educational values and traditions while enhancing learning outcomes. The ultimate goal is to explore how AI can support, rather than replace, traditional Islamic pedagogy, ensuring a balanced approach that maintains the integrity of religious education while embracing technological advancements.

II. RELATED WORK

Previous research related to artificial intelligence has focused heavily on the benefits of AI in education in general, such as: Such as simplifying administration, predicting the character of students, creating learning plans, and facilitating teacher performance by assisting in conducting student analysis as mentioned in the research Setiawan & Luthfiyani [101], Holmes & Tuomi[45], Tahiru [116], Chen et al [25], Huang et al [58], Javed 2020 [50], Shi 2021 [104]. In addition, several studies have written about the challenges and opportunities of applying AI in the educational context for the sustainability of education according to research by Pedro et al [90], Hwang et al [47], and Luan et al [63], Zhang 2023 [132], Akarvardar [5], Monticelli 2023 [77]. In addition, some researchers focus on the use of AI chatbots in education from research by Hwang & Chang [47]. Another related research is the ethics of using AI in education, which was examined by Holmes et al [45], Borenstein & Howard [23], and Adam et al [4].

In general, previous research has focused only on general aspects of education. Several studies apply the use of AI in Islamic religious education, such as Wahyuningtyas' research [124] which designs educational games using AI, several studies on educational institutions around the world have tried to integrate AI into Islamic religious education, such as the research by Wiranto & Suwartini [128]. However, there is still little research that delves into the roles and opportunities as well as challenges and threats involved in the use of artificial intelligence, particularly in the context of Islamic religious education, particularly from the cognitive, affective, and psychomotor perspectives of students [13]. This is important to discuss because Islamic religious education is fundamentally a teaching aimed at becoming a Rabbani person and being able to perfectly understand religious teachings based on Al-Quran and Hadith [114]. Islamic religious education also pays attention to students' cognitive, affective, and psychomotor development. Students' cognitive ability itself is students' ability to absorb, absorb, and understand related learning material, and is also related to students' ability to think about learning material [16]. The affective domain is then the ability of students to develop emotions within themselves and is also related to students' values, attitudes, and acceptance that are consistent with the teaching material, in this case specifically Islamic religious education [75]. Psychomotor skills now include students' skills in connection with body movements such as reflex movements and also basic movement skills in the context of Islamic religious education [54].

As artificial intelligence (AI) technology continues to advance, several studies have explored its application in the context of Islamic education. The study by [85] developed an AI-based learning model used for online learning of the Qur'an and Hadith. This study found that AI can help improve Qur'anic reading skills through interactive features such as voice recognition and automatic tajweed correction [84,85]. Additionally, [56] examined the use of AI in delivering fiqh and akhlaq materials through an adaptive system that adjusts learning based on students' levels of understanding [56]. With this system, students can learn in a more personalized and flexible manner, thereby deepening their understanding of Islamic values. In terms of technology implementation in Islamic educational institutions, the study by [115] found that one of the main challenges in adopting AI is the lack of infrastructure and technological readiness in many Islamic educational institutions, particularly in developing countries. Limited access to AI technology and the lack of training for educators have become major obstacles in the adoption of AI in Islamic educational institutions [115]. Therefore, further studies are needed to address these challenges so that AI implementation can be more effective and inclusive.

Most of the current literature still lacks discussions on how AI can aid in the emotional and moral development of students in Islamic education. In the context of Islamic education, affective learning is crucial as it reflects the formation of Islamic character and the application of ethical values in daily life. AI has the

potential to play a role in enhancing students' affective experiences through technology that enables personalized learning, emotion analysis, and AI-based tutoring systems that can support moral understanding and Islamic values [36].

Previous research has examined the implementation of AI in learning systems capable of analyzing students' facial expressions and voices to assess their level of engagement and emotional understanding in learning [102]. In the context of Islamic education, AI can be utilized to develop interactive systems that not only deliver religious content but also evaluate students' emotional responses to learning and provide feedback aligned with Islamic values. Additionally, AI-based chatbots can serve as virtual mentors, guiding students in a deeper understanding of Islamic teachings. A study by [109] demonstrated that AI-based chatbots have been used in various educational fields to enhance students' conceptual understanding. In the context of Islamic education, chatbots can be developed to answer religious inquiries interactively, provide advice based on Islamic principles, and assist students in understanding Islamic laws through discussion-based learning scenarios [109].

Although AI offers various opportunities in Islamic education, there are also several challenges and threats that must be considered. One of the main challenges is ensuring that AI systems used in Islamic education are not solely focused on cognitive aspects but also reflect Islamic ethical and spiritual values [98]. Additionally, there are concerns about excessive reliance on AI in religious learning, which may reduce the role of teachers as spiritual mentors who possess a deeper contextual understanding of Islamic teachings [35].

Data security and privacy are also critical issues in the implementation of AI in Islamic education. AI systems that analyze students' emotional expressions and learning patterns must be designed with strict data security principles while maintaining ethical considerations in handling students' information. Research by [34] has highlighted various ethical challenges in the application of AI in education, including algorithmic bias and the potential misuse of data.

Based on this literature review, it is evident that there is still a research gap regarding the role of AI in Islamic education, particularly in relation to students' affective and psychomotor aspects. Therefore, this study aims to further explore the various roles and opportunities that AI can offer in Islamic education by examining existing challenges and analyzing them based on Bloom's taxonomy in the cognitive, affective, and psychomotor domains of learners. Thus, this study is expected to contribute to a better understanding of how AI can be effectively integrated into Islamic education, not only in supporting academic processes but also in shaping students' character and morals in accordance with Islamic teachings.

III. MATERIAL AND METHOD

This study employs a qualitative research approach using library research to analyze the role of artificial intelligence (AI) in Islamic religious education. The research design is descriptive qualitative, which aims to provide an in-depth exploration of AI implementation within Islamic education, specifically examining its influence on cognitive, affective, and psychomotor aspects based on Bloom's Taxonomy. The research design is descriptive qualitative, aiming to understand phenomena through an in-depth exploration of relevant literature using a post-positivist approach, where data is collected and analyzed interpretatively to uncover the meaning of the studied phenomenon [111]. As this is a library research study, data sources are drawn from various scholarly materials, including academic journals, books, research reports, and scientific records relevant to the research topic [99].

The sample is selected using purposive sampling, meaning that only literature highly relevant to the study of AI in Islamic education is chosen. Data collection is conducted through documentation methods with a literature review approach, identifying relevant articles, books, and reports through searches in academic databases such as Google Scholar, Scopus, and other indexed journals. Additionally, the snowball sampling technique is used to expand references by tracking citations from key sources [66]. The data analysis utilizes the SWOT analysis method to evaluate the strengths, weaknesses, opportunities, and threats in the implementation of AI in Islamic religious education. The collected data is analyzed qualitatively, focusing on an in-depth understanding of the challenges and opportunities in AI adoption in Islamic education rather than generalizing the findings. Through this approach, the study aims to provide comprehensive insights into how

AI can be effectively integrated into Islamic education while considering its ethical and pedagogical implications.

IV.DATA ANALYSIS

This This study employs the SWOT analysis method to evaluate the strengths, weaknesses, opportunities, and threats associated with AI implementation in Islamic religious education(Parapadakis, 2020). . The collected data is analyzed qualitatively, focusing on an in-depth understanding of the challenges and opportunities in AI adoption in Islamic education rather than generalizing the findings. Through this approach, the study aims to provide comprehensive insights into how AI can be effectively integrated into Islamic education while considering its ethical and pedagogical implication.The analysis focuses on several key aspects. Strengths (S) highlight AI's role in enhancing cognitive and psychomotor learning through personalized learning, interactive teaching tools, and AI-driven tutors. Weaknesses (W) address the challenges of AI in fostering affective learning, including its lack of emotional intelligence and concerns regarding ethical implementation. Opportunities (O) emphasize AI's potential to improve accessibility, efficiency, and engagement in Islamic education, particularly in remote learning and digital classrooms. However, Threats (T) include risks related to technological dependency, data privacy concerns, misinformation in religious content, and socio-cultural resistance to AI in religious education

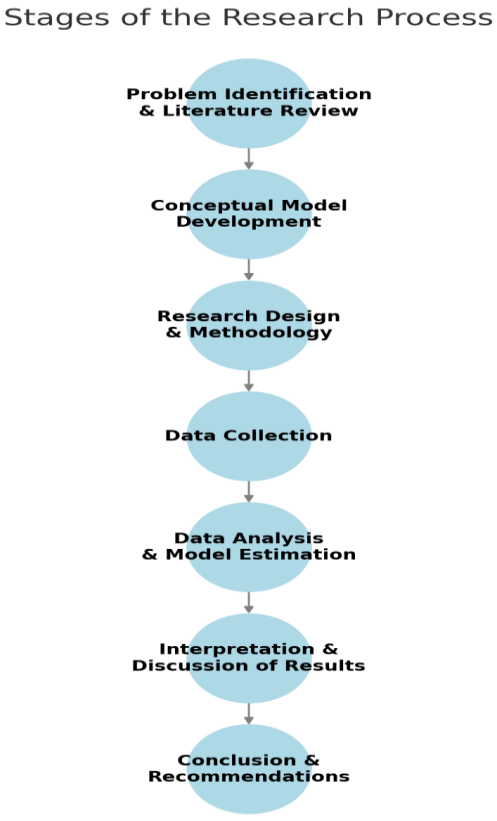

FIGURE 1. Stages of the research process.

Furthermore, the findings are categorized according to Bloom's Taxonomy, classifying AI's contributions into three learning domains: cognitive (knowledge-based learning), affective (emotional and moral engagement), and psychomotor (skill-based learning). This study is limited to theoretical analysis based on

secondary data sources and does not involve primary data collection through empirical observations or experimental studies. Additionally, the study does not generalize its findings but rather focuses on identifying trends, challenges, and opportunities in AI-driven Islamic education. Through this research approach, the study aims to provide comprehensive insights into the strategic integration of AI in Islamic education, ensuring that AI enhances rather than disrupts the ethical and pedagogical foundations of Islamic teaching.

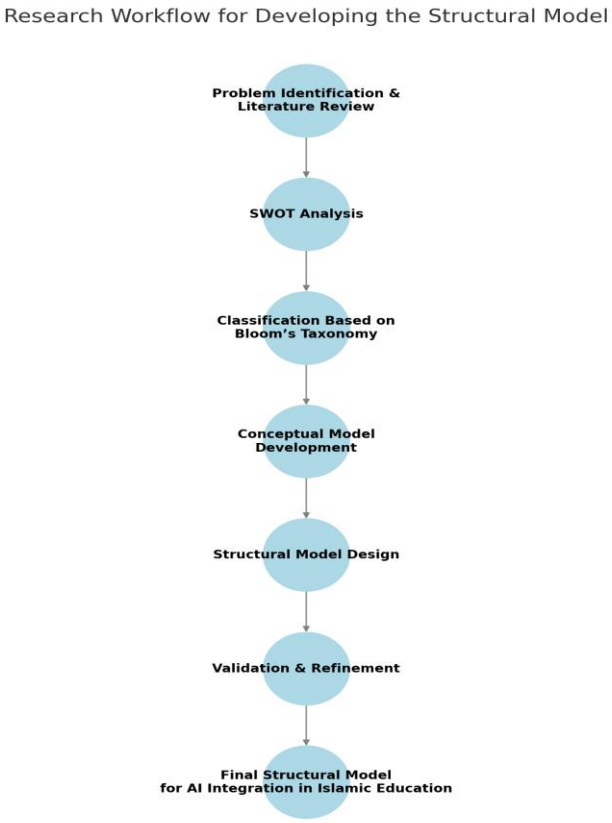

Figure 2. Research workflow for developing the structural model.

Table 1. SWOT analysis framework applied to literature review.

SWOT Factor	Application in Conceptual Model Development
Strengths	Identify **established theories** that support the model, ensuring strong foundations.
Weaknesses	Identify **gaps in existing research** to justify the need for a new model.
Opportunities	Use **emerging trends** and **new theories** to enhance the model's relevance.
Threats	Recognize **limitations** such as methodological challenges or external constraints.

V. RESULTS

Technological developments are inevitable these days. The development of this technology, especially AI, has significantly impacted the world of education, especially Islamic religious education. AI technology that enables independent, timely, and efficient learning means the world of education is entering a new era

of learning. Therefore, below, the researcher will present various roles of AI, challenges of AI, opportunities of AI, and threats of AI in its use in the world of Islamic religious education.

1. THE ROLE OF USING AI IN ISLAMIC RELIGIOUS EDUCATION

1.1 Using AI To Create Adaptive Islamic Learning

One of the advantages of AI is its ability to analyze a student's data in such a way that it is possible to predict and verify each student's skills, talents, and intelligence level [2]. With the convenience of AI, teachers can determine which methods are appropriate for learning Islam, as well as teaching materials that suit each student's skill level [118]. When teachers can use methods that match students' ability levels, learning Islamic religious education materials becomes more effective and efficient.

1.2 Classpoint AI as Improving Students' Cognitive Skills When Learning Islamic Religious Education

Classpoint AI is an AI that has the function of asking students questions about various materials, including Islamic religious education, and creating an exciting feeling during the lesson [2, 29, 44, 127] . The questions asked by Classpoint AI are adapted to the levels of the cognitive aspect of Bloom's taxonomy, starting from cognitive 1 to cognitive 6. Cognitive 1, according to Bloom's theory, is students' ability to know something, then C2, where students can understand, then C3, where they apply knowledge, followed by C4, namely that students can analyze knowledge, and after that C5, where students can synthesize knowledge[72, 107]. Knowledge, and the last is C6 the highest level of Bloom's taxonomy in the cognitive aspect in the form of students' ability to evaluate lessons [119]. Through the use of AI, students will be able to understand Islamic religious education material from knowledge to evaluation of what they have learned, as the questions asked in Classpoint AI are adapted to the cognitive level in Bloom's Tachsonome Theory.

1.3 AI Chatbot as a Private Tutor for Students to Learn Islamic Religious Education Materials

AI chatbot is a type of artificial intelligence that can interact with users [30, 65, 87, 133]. AIChatbot can provide information based on questions asked related to Islamic religious education. In addition, the AI Chatbot is also capable of providing information about Islamic religious materials [43]. And the most interesting thing about the AI chatbot is its ability to advise on Islamic religious morals [31]. Since this AI chatbot is interactive, students will be more enthusiastic about asking questions and exploring information related to Islamic religious education [41]. The interactive nature of this AI chatbot gives students the feeling that they are learning directly with the teacher, even if he does not exist in real form but only virtually [64].

Based on the view of Bloom's taxonomy theory, this AI chatbot can be used by students to improve students' cognitive skills up to level C2, namely comprehension only, as it only provides relevant material requested by the user and therefore only used as becomes reference source [3]. Although this AI chatbot is capable of providing an interactive learning experience, when viewed in the affective domain in the theory of blood taxonomy, it can only achieve the first level, which is acceptance [76]. Because the AI chatbot is just an information provider. Since this AI chatbot is a technology, it does not have emotions, ultimately unable to transmit attitudes, values, feelings, or emotions to students [89]. This transfer of attitudes, values, and feelings can only occur between a human and another human, both of whom have emotions or feelings, while this AI has no emotions or feelings [42].

1.4 Squirrel AI Acts as an AI Technology that Can Improve Students' Psychomotor Skills

Squirrel AI is one of the AIs tasked with personally guiding students through virtual performances and live shows [81]. By using squirrel AI in Islamic religious education, students' psychomotor skills can be improved up to the third level that is Students can make learning a habit in life [110]. This can be achieved because Squirrel AI provides live Islamic religious education tutorials and explanations, which students can then replicate, train, demonstrate, and become familiar with the teaching material based on the insights taught by Squirrel AI. Repeated use of this virtual mentor allows students to become accustomed to what they see often [38]. This squirrel AI cannot achieve the highest psychomotor level, namely the articulation of students who can perform complex interpretive movements [24]. This is because this AI only provides visual representations and cannot convey emotions.

1.5 Using AI To Analyze Student Data as Assessment Material

Another ability of artificial intelligence is to be able to analyze the results of the performance of each student [44]. Based on this artificial intelligence capability, teachers can easily determine the next steps in learning. In addition, the results of AI analysis will make it easier for teachers to see the development of each student.

1.6 Learning is Interactive and Fun

One of the keys to learning success is presenting interactive and entertaining learning materials [128]. AI's ability to enable interactive and entertaining learning will have the potential to have a positive impact on the learning of Islamic religious education [93]. So that the material learned is easier for the students to understand as the material is presented entertainingly and does not burden the students.

1.7 Student Administration

The currently widely used AI technology has one ability: it can help organize data or manage it in schools, making it easier for teachers to collect data and monitor each student's progress [18].

The role of AI in the world of education explained above is certainly not due to the challenges that the world of Islamic education faces in using AI [51, 120]. The challenges faced by researchers are presented in two types: challenges for teachers and challenges for students.

2. CHALLENGES IN USING ARTIFICIAL INTELLIGENCE IN ISLAMIC RELIGIOUS EDUCATION FOR STUDENTS

2.1 Addiction to Technology

The presence of AI in today's society can have an addictive effect on its users due to its entertaining and interactive nature. In addition, several factors cause technology addiction, namely boredom with monotonous activities, feelings of anxiety about meeting other people, and the psychological urge to get involved in social media trends [21]. Dependence on this technology, especially AI, can cause someone to become antisocial, enjoy being alone, and easily become stressed and depressed [83]. Dependence on this technology in education impacts students' cognitive abilities, which then leads to a reduction in student performance, followed by students' lack of interest in interacting during Islamic religious education and also an erosion of the value of traditional teachings in Islamic religious education [22].

A. Problems arising from the use of AI

AI, which has become widespread in society, can threaten the security of student data. Additionally, there is also a risk of data breaches as protected data is widely available, free, and accessible to everyone [74]. Finally, there is a risk of bias in the AI algorithm itself, as a lot of data is mixed and has the potential to be used as material for crimes [105].

B. Unhealthy use of AI

AI, which has unlimited access, allows all ages to use it. This freedom of access allows the use of AI in games or simulations of things that are not suitable for the user's age, so it can hurt the psychomotor skills as well as the psychosocial skills of students.

C. Lack of physical exercise

Various interesting content provided by AI can cause students to feel sedentary as their body is only focused on the screen unless they are properly accompanied by the teacher.

D. Consistency with the values of Islamic religious education

AI, which is a technological product and has no feelings, will be able to destroy the value of religious education among students. This can happen because the AI does not fully understand and understand the values contained in Islamic religious education [80, 94]. This value can only be conveyed through interaction between people, namely directly between teacher and students, and cannot be conveyed through something that has no feelings [46].

2.2 Challenges in Using Artificial Intelligence for Teachers

A. Look for the immediacy of AI

AI, which is believed to be able to provide various conveniences to teachers, will come with its challenges, namely, instantaneous dependence. Where teachers become dependent on AI in their professional work. From creating questions to managing administration to evaluating students [32]. This causes teachers to become lazy in preparing the material to be taught to students [108]. This will reduce the quality of professional teachers due to the reliance on the immediacy of AI, which will impact a teacher's pedagogical skills.

B. Incompetence of teachers in using technology

Along with the development of AI in the world of Islamic religious education. Every teacher around the world is obliged to keep up with the times. With this requirement, any teacher who is not comfortable with technology will face technological stress that may affect their teaching skills, ultimately leading to suboptimal and inefficient learning of Islamic religious education [39].

C. Declining student interest in teachers

The development of AI is increasingly being driven forward by offering various learning facilitations, including the individualization of learning. The challenge of this individualization of learning is that students' interest in teachers decreases due to students' habit of learning independently using AI [6]. In Islamic religious education, the relationship between teacher and student is important to channel the cultural values of the Islamic religion [20].

D. Assessment of learning progress

An important aspect of education is the affective aspect, where assessing students' affectivity cannot be done by AI. If a teacher begins to rely on assessments that use AI analytics, students' affective assessments will not be optimal[14]. Because to assess an emotion, a teacher's feelings must be present to make an assessment related to the affectivity of the students, which is not possible with AI [48].

E. Support of students

When learning Islamic religious education, three important aspects are always in the foreground, namely faith, morals, and worship [96]. Therefore, with the use of AI in education, there is a need for new strategies to support students [66, 67, 1008, 112]. This is necessary in order not to use advances in AI as a means to look at things that contradict Islamic religious education or are outside the noble values of Islamic religious education [59].

F. Integrating AI into the Islamic religious education curriculum

AI as something has become a hot topic of discussion recently, especially among academics. Since the main topic is the use of AI in Islamic religious education, this is the main topic of discussion. Since many teachers today are still unfamiliar with AI technology that is efficient and easy to learn, this is one of the challenges that must be faced in efforts to integrate AI and the world of Islamic religious education to AI to be able to reach [1]. A solid education requires time and effort, especially for the teaching staff of this time [53]. When integrating AI into religious education, we face challenges in the form of high funding requirements, accessibility of the internet, AI experts, and adapting the curriculum to AI technology.

G. Declining quality of teaching staff

Islamic religious education teachers have the responsibility to act as role models for students [71]. Aside from being role models, Islamic religious teachers have three important roles: imparting knowledge, imparting manners, and imparting morals to students [79]. With the presence of AI, Islamic Religious Education teachers become passive teachers as the AI provides all sorts of conveniences, resulting in Islamic Religious Education teachers becoming less enthusiastic about giving Islamic Religious Education to students as everything has been provided by the AI, starting in learning media, teaching materials, right up to learning evaluation [8, 9]. The presence of AI has reduced the role of Islamic religious teachers in providing learning content related to Islamic religious education [15]. Apart from that, with the laziness caused by AI, the noble values of Islamic religious education are not conveyed optimally. Teachers play an important role in conveying the values of Islamic religious education, which also includes the cultivation of noble morals [7]. Here, the cultivation of morality cannot be done through AI.

When one looks at the role of the use and challenges of using AI in Islamic religious education, this naturally presents various opportunities in Islamic religious education that can be maximized. Below are several possibilities related to the use of AI in Islamic religious education.

3. *OPPORTUNITIES IN THE USE OF AI TECHNOLOGY IN THE FIELD OF ISLAMIC RELIGIOUS EDUCATION*

A. Independence in learning Islamic religious education

AI, which offers many benefits, can be used to encourage students to learn better so that they can maximize their potential because learning with AI provides a learning atmosphere that suits each student, is interactive and easy to understand, so that students can learn and understand the material in connection with Islamic religious education easily and comfortably [11].

B. Easy access to learning Islamic religious education

AI technology, which is rapidly developing around the world, can overcome one of the barriers to knowledge, namely long distances. With the presence of AI in society, Islamic religious education can be learned in every corner of the world without restrictions, making it easier for everyone to study Islam in more depth [112]. The AI created in this era has many advantages, including the ability to think rationally like humans, so that when we send a message to the AI to carry out a command, the AI immediately responds rationally to the command we give [100]. Including the order to open Islamic religious education materials, starting with material on Aqidah, Fiqh, and Hadith, as well as other main points of Islamic education [58]. The difference between AI search engines and ordinary search engines is the AI's ability to provide a summary of the searches we want so that they can be more targeted, unlike ordinary search engines that show many different options, sometimes even too far from are distant from what we want, because AI is designed to think like humans [86].

C. Increasing the quality of educational content

AI that collects various data from around the world and can perform analysis on large amounts of data offers opportunities to improve the quality of educational content. This is also strengthened by his ability to think rationally [66,67]. Harnessing the benefits of AI can create opportunities for developing learning content that is more interesting and engaging, giving the impression of easy and fun learning [125,126]. The more interesting the learning content presented, the greater the students' interest in studying Islamic religious education [33].

D. Customize learning

The AI currently under development offers the ability to analyze each student based on their intelligence level and interest. The use of AI will provide opportunities to create learning based on each student's ability level, creating differentiated learning.

E. Suggestions for teaching materials for Islamic religious education from AI

AI that has good online data sources will provide Islamic religious education participants with the opportunity to provide advice on what reading material they should study in the context of Islamic religious education[83, 84]. The suggestions come in the form of videos, reading books, or articles that relate to the material being studied.

F. Development of Islamic religious learning games

With its advancements, AI has the opportunity to create visual games that focus on Islamic values and teachings, which can then be used for teaching, allowing students to experience the feeling of learning while playing.

G. Virtual tutor

Currently, in the development of AI, there is the possibility of acting as a virtual tutor. With this online teacher, AI helps train students to memorize the Quran, teach Arabic, and learn other religious materials [125,126]. Training on the use of AI for teachers

AI is a new technology and not many people are using it, especially Islamic religious education teachers. As something new, it has to be learned first and then applied in school learning [12]. This offers the

opportunity to conduct training on AI for teachers of Islamic religious education so that they can integrate AI into teaching.

H. Curriculum integration with AI

The progress and various benefits of AI provide opportunities for integrating Islamic religious education into the existing curriculum, creating a contemporary and modern Islamic religious education that is more effective and efficient.

Apart from the possible uses in Islamic religious education, the use of AI in Islamic religious education will also bring with it dangers that must be faced. Below are some of the threats that the use of AI in Islamic religious education will face.

4. THREATS OF USING AI IN ISLAMIC RELIGIOUS EDUCATION

A. Student misunderstandings.

AI having the ability to be a source of knowledge does not exclude the possibility of a false explanation. AI can be wrong in explaining religious content because AI itself is a product that was created to think like humans, but fundamentally cannot think like humans. AI is just a technology that collects data based on certain algorithms and then provides material based on the data stored and the algorithms used [57]. Given this, it does not rule out that AI could pose a threat to students' misconceptions about Islamic religious education material. This will be fatal for Islamic religious education since the main sources of Islamic religious education are the Al-Quran and the Hadith [113]. If there is any misunderstanding in the understanding of Al-Quran and Hadith, it will result in students making mistakes in performing worship rituals that are under Shariah rules [123]. Apart from this, it will also cause students to doubt the teachings of Islamic religious education because of their flaws in conveying the understanding provided by AI.

B. Technical problems with AI.

This intensive use of AI will become addictive, causing students to become frustrated when technical problems arise with AI, which ultimately affect the learning and teaching process, especially the cognitive aspects of students who are beginning to learn Feeling sluggish because everything is like that depends on the AI. Technical issues in AI processing can occur due to incorrect command input from the user, which results in the AI giving inappropriate responses to the AI user [4].

C. Student data leaks

Using AI to analyze student progress requires data from students. This poses a danger as the data can be shared with irresponsible parties, allowing the data to be used for crimes [131].

D. There is a risk of quality gaps in educational institutions.

AI technology is one of the newest technologies of this time. Accessing AI requires at least some equipment to support education, such as WiFi, a projector, a computer, and sufficient electricity. Since not all educational institutions can implement this, there is a risk that gaps in Islamic religious instruction will arise between educational institutions [70]. This gap arises because only a few educational institutions can take advantage of the convenience of AI and can implement efficient, adaptable, and contemporary education. Meanwhile, educational institutions that are unable to implement Islamic religious education with integrated AI will be left behind and unable to optimize [129]. This is the reason for the gap between one educational institution and another. There are deficits not only in the educational institutions but also in the quality of the teaching staff and the quality of the students produced [117].

E. The erosion of the values of Islamic religious education

The latest technology in the form of AI has brought many conveniences in all fields, especially in the field of Islamic religious education, which can threaten the erosion of sacred values in Islamic religious education. This threat arises from AI, which does not exclude errors in explaining the values of a good Islamic religious education under Islamic religious culture [10]. Mistakes in explaining the values of Islamic religious education can lead to conflict and disagreement between one Islamic religious teacher and another. AI cannot distinguish between right and wrong like people in general can [49].

F. Students' dependence on immediate answers

When AI is widely used by students, dangers arise in the form of reliance on instant answers and students' unwillingness to learn and search for answers by opening books or related literature. Students' dependence on AI leads to laziness in learning, which affects students' cognitive abilities.

5. SWOT ANALYSIS TABLE THE ROLE OF USING AI IN ISLAMIC RELIGIOUS EDUCATION

Table 2. Model, assessment, a-based learning module for Islamic religious education.

Strength	Weakness	Opportunity	Threat
The ease of AI in providing learning materials based on Islamic religious education that is continuously updated and adapted to the times.	There is a lack of resources to use AI technology	The use of AI can create a new learning method based on the latest sources of knowledge about the Islamic religion	The educational gap between those who can use AI and those who cannot use AI
Islamic religious education material is taught using different methods and different learning styles	Existing curricula will struggle to incorporate AI	Visualization of learning using a virtual tutor who can support the learning process	The quality of Islamic religious education material provided is decreasing due to the use of too many teaching methods and styles
The ability of AI to provide quick answers to questions asked or discussed by students	AI limitations in providing feedback to students related to students' affective aspects	Ability to integrate existing curricula through the use of AI	Students' addiction to using AI means that AI also carries the potential for process failure and system errors
Adaptive and interactive learning made possible through the use of Class Point AI	Interactive learning with a focus on AI leads to a lack of interaction between teachers and students	Providing proposals for Islamic religious education materials adapted to cognitive aspects based on Bloom's theory, offering the opportunity to improve students' cognitive abilities at the highest level	Addicted to instant answers through AI
The ability of AI to analyze existing student data to increase learning effectiveness	Teachers' lack of ability to use AI in assessing student learning	Develop technology-related training for teachers to use AI in learning Islamic religious education	Using AI capabilities to analyze student data poses a risk of student data loss as student data must be collected individually
The interaction between AI and students is interactive, entertaining, and informative	Declining student interest in teachers for Islamic religious education	Improving the quality of learning aids through the use of AI	Issues that may arise in the technical aspects of the AI system
Learning guide to improve students' psychomotor skills using Squirrel AI	1. Limited access for students to use AI as not all students have the appropriate technology to access AI	Accessibility of Islamic Religious Education in a Global Framework around the world	Limited access to various educational institutions in different regions

Identify Islamic religious education tailored to each student's learning needs	2. Minimum funding for implementing AI in learning	Source for quality Islamic religious education materials that meet students' learning needs	There is a possibility that AI may be slow to respond to each student's learning needs

Table 2. The connection between strength and opportunity and its optimization strategy when using AI in the field of Islamic religious education.

Strength	Opportunity	Relationship Analysis	Strategy
The ease of AI in providing learning materials based on Islamic religious education that is continuously updated and adapted to the times.	The use of AI can create a new learning method based on the latest sources of knowledge about the Islamic religion	The flexibility of AI and the convenience that AI provides in presenting Islamic religious education material can bring about a new method of learning	Using AI capabilities to provide knowledge sources for Islamic religious education to develop innovative and new learning methods
The use of AI can create a new learning method based on the latest sources of knowledge about the Islamic religion	Visualization of learning using a virtual tutor who can support the learning process	AI that can act as a virtual tutor will be able to help learn Islamic religious education using different methods and styles	Maximizing the potential of AI as a virtual tutor to optimize Islamic learning, particularly in terms of methods and learning styles
The ability of AI to provide quick answers to questions asked or discussed by students	Ability to integrate existing curricula through the use of AI	The speed of feedback that AI has in learning requires an adjustment in the Islamic religious education curriculum	Adapting the curriculum with AI in the teaching and learning process of Islamic religious education material
Adaptive and interactive learning to improve the cognitive aspects of students can be done by using Classpoint AI	Providing suggestions for Islamic religious education materials adapted to cognitive aspects and based on Bloom's theory to improve students' cognitive abilities	Classpoint AI can make recommendations on the material to be taught by looking at the cognitive level of the students, which is adjusted to the cognitive level based on Bloom's theory.	Strengthening AI's ability to deliver learning material based on Bloom's cognitive level theory and adapted to each student's abilities
The ability of AI to analyze existing student data to increase learning effectiveness	Islamic religious education learning is tailored to students' performance levels based on AI's data analysis capabilities	Proper analysis of student data will be a consideration in adjusting learning based on the level of student ability	Maximizing the development of data analysis tools, particularly AI, to achieve more personalized and effective learning
The interaction between AI and students in Islamic religious education is interactive, entertaining, and informative	Improving the quality of learning aids through the use of AI	AI can create the impression of being an interactive and entertaining learning companion	By integrating AI into existing learning tools, learning becomes more effective and we must not forget that students are always actively participating in learning
Learning guide to improve students' psychomotor skills using Squirrel AI	Accessibility of Islamic Religious Education in a	AI can be a technology used to maximize the accessibility	Integrating AI with other global platforms to maximize learning in

	Global Framework around the world	of Islamic religious education materials worldwide	Islamic religious education
Identifying Islamic religious instruction that is tailored to the learning needs of each student	Source for high-quality material on Islamic religious education	AI can identify each student's learning needs based on the students' analyzed data, so it can help students access high-quality, customized material.	Socialize the use of AI in identifying each student's needs for Islamic religious education materials to support the development of access to quality education on a global scale

Table 3. Analysis of the relationship between strength and threat and strategies that can be applied when using AI in the field of Islamic religious education.

Strength	Threat	Relationship Analysis	Strategy
The ease of AI in providing learning materials based on Islamic religious education that is continuously updated and adapted to the times.	The emergence of AI-provided Islamic religious education learning materials that do not conform to the correct definition and understanding based on Al-Quran and Hadith	AI as a flexible source of material does not exclude the possibility of providing incorrect definitions or understandings regarding Islamic religious education material	Monitor the use of AI by students so that the material provided by AI is consistent with the definition and understanding of Islamic religious education based on Al-Quran and Hadith
Islamic religious education material is taught using different methods and different learning styles	There is a potential threat to the quality of Islamic religious education material provided	By using too many methods, there is a risk that the material presented will be reduced and of poor quality	Maintaining harmony and balance between learning methods and standard Islamic religious education learning materials to be imparted to students
The ability of AI to provide quick answers to questions asked or discussed by students	Students' addiction to using AI means that AI also carries the potential for process failure and system errors	Addiction that arises in students from overuse of interactive AI	Make it clear to students that AI is just a tool and cannot replace the role of the teacher, so students must continue to communicate directly with the teacher so that the bond between students and teachers becomes stronger.
Adaptive and interactive learning made possible through the use of Class Point AI	The addiction that students will feel for the instant answers provided by AI	Learning presented with Classpoint AI will encourage students to immediately search for answers through other AI as the difficulty level of the questions created is based on the cognitive level of Bloom's theory.	Conduct intensive supervision during Islamic religious education and encourage students to answer questions directly so that they do not search for answers using other AI
The ability of AI to analyze existing student data to increase learning effectiveness	Using AI capabilities to analyze student data poses a risk of student data loss as	Using AI as a data analysis technology requires extensive student data,	Strengthen the student data protection system and create rules that

	student data must be collected individually	which is vulnerable to important data leaks	specifically regulate student data protection to reduce the risk of data leaks and misuse of existing data
The interaction between AI and students is interactive, entertaining, and informative	Issues that arise in technical aspects of the AI system can cause stress	Excessive interaction with the AI leads to addiction problems and then when there is interference with the AI system, students feel stress	Providing more interactive learning sources alongside the use of AI and balancing it with the development of interpersonal skills
Learning guide to improve students' psychomotor skills using Squirrel AI	Limited access to various educational institutions in different regions	Guiding students' psychomotor learning using Squirrel AI requires access to appropriate technology, and not all educational institutions have access to it	Initiate a comprehensive digitalization program for educational institutions and provide mental and material support to areas that have difficulty accessing technology, especially AI
Identify Islamic religious education tailored to each student's learning needs	There is a possibility that AI may be slow to respond to each student's learning needs	Changes that occur in students may be recognized too late by the AI	Improving the capabilities of AI or developing a system that is more responsive and sensitive to student changes so that it can adapt more precisely to learning needs

Table 4. The connection between weakness and opportunity and strategies that can be used to optimize the use of AI in the field of Islamic religious education.

Weakness	Opportunity	Relationship Analysis	Strategy
Teachers' lack of skills in using AI	Develop technology-related training for teachers to use AI in learning Islamic religious education	Opportunity to improve the quality of Islamic religious education teachers through the use of technology in Islamic religious education	Providing a training platform for Islamic religious teachers related to the use of technology in Islamic religious education
There is a lack of resources to use AI technology	Expansion of infrastructure in underdeveloped areas	The integration process between technology and Islamic religious education will open up opportunities for infrastructure development in remote and underdeveloped areas	The government is working with related educational institutions to provide educational infrastructure that supports the process of integrating technology into Islamic religious education
There is no internet access in certain areas	Developing AI-like technology without having to use internet access or access it offline	Limited internet access opens up opportunities to develop technologies such as AI that do not rely on the internet	The government is developing AI-based learning technology that does not require the

			Internet to support AI-based Islamic religious education
Limited integration between curriculum and AI	A flexible curriculum enables the integration of AI into education, especially Islamic religious education	There is an opportunity to integrate AI into curriculum development as the curriculum is flexible	Further developing the existing curriculum to make it more flexible and able to integrate technology, particularly AI, into learning to enable more effective learning
There is a lack of resources to use AI in Islamic religious education	Funds or grants provided by the government or educational institutions to integrate AI into education, particularly Islamic religious education	AI, a current trending topic, opens up opportunities to receive grants for research using AI, particularly in the education sector.	Raising funds from various sponsors, companies, partnerships, or governments interested in supporting the integration of AI technology into education, particularly Islamic religious education
Lack of experience in AI operations or management related to AI	Training or mentoring will be one of the new opportunities in the process of integrating AI into education as the public, especially teachers, still have minimal experience in managing and operating AI technology.	Opportunities especially for teachers to improve their skills related to AI management	Organizing training and mentoring for teachers and staff of educational institutions related to the management of AI operating systems

Table 5. The connection between weakness and threat and strategies when using AI in the field of Islamic religious education.

Weakness	Threat	Relationship Analysis	Strategy
Teachers' lack of skills in using AI	The gap between AI-based educational institutions and non-AI-based educational institutions	The threat of teachers' lack of AI knowledge creates a large gap between educational institutions that implement AI and educational institutions that cannot implement AI in their training.	1. 1. Conduct competitive assessments between educational institutions, especially among top-tier educational institutions that have implemented AI. 2. Design a plan to improve teaching staff skills in using AI
There is a lack of resources to use AI technology	Dependent on conventional technology and unable to keep up with the times	Lack of resources leads to dependence on conventional technology, which will hinder educational development	Evenly disseminate information about the use of AI in Islamic religious education so that it can help accelerate the development of Islamic religious education

There is no internet access in certain areas	Dependence of the learning process on the Internet connection	There is a risk to learning ability when there are disconnections	Design contingency strategies required in the event of connectivity issues and create alternative offline technologies that do not use the Internet
Limited integration between existing curriculum and AI	Limitations in developing curricula that meet developments in AI technology	There is a risk of a lack of integration between AI and curriculum due to existing limitations in the form of limited human resources, financial resources, and infrastructure	Establish collaboration between the Ministry of Education and AI technology experts to make curriculum development more responsive and flexible in line with AI developments
There is a lack of resources to use AI in Islamic religious education	The lack of innovation in the field of Islamic religious education is due to budget constraints	Limited resources jeopardize the development of innovations in the field of Islamic religious education and lead to a lag in innovation in learning Islamic religious education	Find suitable funding sources to support innovation in the field of AI-based Islamic religious education.
Lack of experience in AI operations or management related to AI	The security of student data is at risk and the vulnerability to technical errors caused by AI	Unprofessional AI management puts student data at risk and can lead to technical errors in the AI system process	Conduct comprehensive AI system security training seminars to reduce the risk of AI errors and student data leaks
Teachers' lack of skills in using AI	The increasing gap between AI-based educational institutions and traditional educational institutions	The loss of competitiveness between educational institutions is a consequence of the growing gap created by AI	Conduct competitive assessments between educational institutions, both technology-based and conventional

To clarify the main findings, we have compiled the research results into a SWOT table (Strengths, Weaknesses, Opportunities, and Threats) highlighting the advantages, challenges, opportunities, and threats in the implementation of AI in Islamic education. Additionally, a graph has been used to illustrate the percentage of AI involvement in cognitive, affective, and psychomotor aspects based on the reviewed literature.

Table 6: Summary of AI's role in Islamic education based on bloom's taxonomy.

Category	Bloom's Taxonomy Level	AI's Role in Islamic Education	Examples of AI Implementation
Cognitive	C1 (Remembering)	AI helps students recall Islamic knowledge, including Quranic verses, Hadith, and Fiqh rulings.	- *ClassPoint AI* organizes and retrieves Islamic content for students based on queries. - *Quran memorization AI* uses spaced repetition for effective memorization.
	C2 (Understanding)	AI enhances students' comprehension of Islamic	- *ClassPoint AI* customizes explanations of Islamic jurisprudence based on student levels.

Category	Bloom's Taxonomy Level	AI's Role in Islamic Education	Examples of AI Implementation
		teachings through adaptive learning.	- AI-powered translation tools clarify Quranic meanings in different contexts.
	C3 (Applying)	AI assists students in applying Islamic teachings to real-life ethical dilemmas and religious practices.	- *AI Chatbots* provide real-time ethical guidance on Islamic laws. - *Scenario-based AI learning* helps students apply Fiqh principles to daily life.
	C4 (Analyzing)	AI enables students to compare different interpretations of Islamic texts and theological perspectives.	- *NLP-based AI* helps analyze tafsir (Quranic exegesis) from various scholars. - AI-driven tools facilitate comparative studies of Islamic jurisprudence schools.
	C5 (Evaluating)	AI provides tools for assessing the authenticity and validity of religious arguments.	- AI-powered fact-checking systems verify the accuracy of Islamic teachings. - AI-assisted tools support critical evaluation of Islamic rulings.
	C6 (Creating)	AI supports students in generating Islamic reflections, essays, and research papers.	- *AI writing tools* assist students in drafting scholarly articles on Islamic topics. - AI-driven content generation platforms help structure religious discourse.
Affective	A1 (Receiving)	AI captures students' attention and introduces them to Islamic knowledge in engaging ways.	- *AI-based Quran recitation apps* provide interactive learning. - AI storytelling platforms narrate Islamic historical events.
	A2 (Responding)	AI fosters engagement by enabling students to interact with religious materials.	- *AI Chatbots* allow students to ask religious questions in real-time. - *Gamified AI quizzes* measure engagement with Islamic teachings.
	A3 (Valuing)	AI helps students appreciate and reflect on Islamic moral values.	- *AI-driven moral analysis* assesses students' ethical reasoning based on Islamic principles. - AI-generated personalized self-reflection prompts encourage spiritual growth.
	A4 (Organizing)	AI structures learning to help students develop a consistent Islamic values framework.	- AI-powered journaling apps track students' spiritual and ethical progress. - AI-based goal-setting tools assist in structuring Islamic learning paths.
	A5 (Characterizing by Value Set)	AI lacks the ability to instill deep moral character and requires human guidance.	- AI can support moral discussions but cannot replace human mentors for ethical and spiritual development.
Psychomotor	P1 (Perception)	AI helps students recognize proper techniques for Islamic rituals.	- *AI Vision Technology* evaluates students' prayer postures and wudu movements. - AI gesture recognition corrects students' Quranic recitation movements.

Category	Bloom's Taxonomy Level	AI's Role in Islamic Education	Examples of AI Implementation
	P2 (Set)	AI guides students in preparing for religious practices.	- *Squirrel AI* provides real-time tutorials on prayer and wudu. - AI-generated pre-prayer reminders ensure readiness.
	P3 (Guided Response)	AI offers guided repetition to help students practice Islamic rituals.	- *Virtual tutors* provide interactive Quranic recitation exercises. - AI-driven Hajj and Umrah simulation apps guide users through pilgrimage steps.
	P4 (Mechanism)	AI enables students to develop proficiency in religious practices.	- AI-assisted recitation analysis provides real-time feedback on tajweed. - AI-powered Islamic calligraphy training enhances Arabic script writing.
	P5 (Complex Overt Response)	AI facilitates mastery of advanced religious skills through interactive learning.	- AI-based memorization techniques enhance fluency in Quranic recitation. - AI-driven voice analysis helps refine Quranic recitation tone.
	P6 (Adaptation)	AI allows students to personalize their learning experiences based on individual preferences.	- AI adjusts learning modules based on student progress and engagement.
	P7 (Origination)	AI has limited capabilities in helping students create new religious expressions or practices.	- Human mentors remain essential for advanced religious learning and applications.

The Cognitive Domain demonstrates that AI is highly effective in knowledge recall, understanding, and analysis (C1–C4) by assisting students in memorizing Quranic verses, understanding Islamic jurisprudence, and analyzing religious texts. However, AI faces challenges in higher-order cognitive skills (C5–C6), such as evaluating religious arguments and creating original Islamic interpretations, as these tasks require human critical thinking, reasoning, and creativity, which AI cannot fully replicate.

In the Affective Domain, AI plays a significant role in engagement and interaction (A1–A3) by providing interactive learning experiences, gamified religious quizzes, and AI-driven chatbots for religious discussions. However, AI struggles with deep character formation and moral integration (A4–A5), which are essential in shaping students' ethical and spiritual growth. Developing a strong Islamic character requires emotional intelligence, mentorship, and direct human guidance, elements that AI cannot yet fully replace in moral and spiritual education.

The Psychomotor Domain highlights AI's exceptional effectiveness in skill-based learning (P1–P5), especially in ritual guidance, Quranic recitation, and gesture recognition. AI-driven virtual tutors and vision-based applications help students practice wudu, prayer movements, and Quranic pronunciation with real-time feedback. However, AI lacks adaptability (P6–P7) in student-driven learning, as it cannot independently adjust to students' evolving spiritual expressions and advanced ritual practices without human oversight. This indicates that while AI can enhance structured and guided religious education, human teachers remain indispensable for deeper personalization and adaptability.

In addition to the table, this study also analyzes the proportion of AI involvement in cognitive, affective, and psychomotor aspects. The following graph shows that AI plays a dominant role in the cognitive aspect (40%) and psychomotor aspect (35%), while its contribution to the affective aspect remains low (25%).

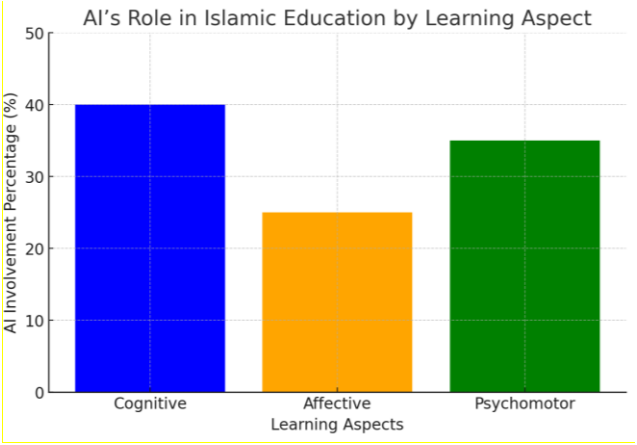

FIGURE 3. AI's role in Islamic education by learning aspect.

The graph above illustrates that AI has the greatest role in the cognitive aspect (40%), followed by the psychomotor aspect (35%), while its contribution to the affective aspect remains lower (25%). This indicates that while AI can support conceptual understanding and practical Islamic learning, it still has limitations in fostering moral and spiritual development, which traditionally relies on teacher-student interactions and social environments. With this visualization, the study provides a clearer understanding of the areas that need further development in the use of AI for Islamic education.

AI has been implemented in learning systems that utilize data analysis and personalized content to enhance students' cognitive understanding, where platforms such as ClassPoint AI dynamically adjust the difficulty level of Islamic education materials to match students' comprehension, promoting deeper cognitive engagement. However, AI still faces limitations in fostering affective and moral development, as it lacks emotional interaction and personalized spiritual guidance. While AI-assisted chatbots can provide real-time religious guidance, they cannot replace teachers as spiritual mentors who offer contextual and emotional insights into Islamic teachings. A proposed solution is the development of AI systems capable of analyzing facial expressions and voice tone to assess students' emotional engagement and provide feedback aligned with Islamic ethical values.

One of the unexpected findings in this study is the limited impact of AI on students' affective development in Islamic education. While AI-driven tools enhance cognitive and psychomotor aspects, their effectiveness in fostering emotional and moral engagement remains minimal. A possible explanation is that AI lacks human empathy and personalized moral guidance, which are crucial in affective learning. In Islamic education, moral and ethical values are traditionally imparted through teacher-student relationships, personal interactions, and mentorship. Although AI-based emotion recognition and sentiment analysis tools exist, they cannot fully capture the depth of ethical reasoning, emotional intelligence, and spiritual development that human teachers provide. Future AI advancements may need to integrate ethical reasoning models and context-aware emotion detection to enhance affective learning outcomes.

Another alternative explanation is the variability in AI adoption across different Islamic educational institutions. Technological infrastructure, educators' readiness, and cultural perceptions of AI influence how AI is integrated into classrooms. In institutions with limited technological access, AI tools are often underutilized or misaligned with pedagogical goals. Furthermore, the over-reliance on AI without structured human supervision may lead to students becoming passive learners, further limiting its effectiveness in promoting engagement and value-based learning.

This study aligns with previous research that highlights the positive role of AI in cognitive and psychomotor learning but underscores its limitations in affective education [47]. Studies on adaptive AI learning models have demonstrated that AI excels in customizing educational content based on students' proficiency levels, making learning more effective [56]. Similarly, research on AI-driven psychomotor

learning has shown that tools like Squirrel AI and virtual tutors improve students' ability to practice religious rituals such as prayer, wudu, and Quranic recitation [108,109].

However, this study extends the discourse by emphasizing the ethical, pedagogical, and social challenges that come with AI integration. Unlike conventional education models where teachers play a dual role as educators and mentors, AI lacks the cultural, ethical, and emotional depth required to teach Islamic moral values. Similar concerns were raised by Farooqi et al. (2024) in their discussion on ethical AI in education, where they noted that algorithmic bias, data privacy concerns, and over-reliance on automation present critical barriers to AI's effectiveness [34].

Furthermore, while AI-based tutoring systems improve knowledge retention and real-time feedback mechanisms, studies have shown that personalized AI learning environments may create dependency issues and reduce human engagement in classrooms [35]. This aligns with our findings, where students' reliance on AI for immediate answers may diminish their ability to critically reflect on religious teachings, leading to surface-level learning rather than deep, meaningful engagement.

Additionally, AI-based tutoring systems have the potential to enhance students' psychomotor abilities, particularly in Islamic practices such as prayer and Quranic recitation. Squirrel AI, for example, acts as a virtual tutor, providing interactive demonstrations of prayer movements (salah), ablution (wudu), and Quranic recitation, allowing students to refine their practical skills through AI-guided feedback.

This advanced technology called AI has great potential to improve students' cognitive skills up to the C6 level and psychomotor skills up to the third level. However, this technology is unable to effectively improve students' affective skills. The use of AI in Islamic religious education will be maximized if it adopt the right strategy and focus on maximizing the benefits and opportunities of AI. Along with suppressing and minimizing the challenges and threats that the use of AI technology will face. In addition, special attention is required regarding the values of Islamic religious education, student privacy, and the correct understanding of Islamic religious education material. AI-based learning in Islamic religious education will be more effective and efficient by paying attention to benefits and opportunities and anticipating various challenges and threats.

Based on the research findings, this is the final model structure that represents the relationships between AI integration, SWOT analysis, and Bloom's Taxonomy learning domains (Cognitive, Affective, and Psychomotor) in Islamic Education.

The conceptual model structure illustrates the integration of Artificial Intelligence (AI) in Islamic education, highlighting its impact on different learning domains based on Bloom's Taxonomy while considering the influences of SWOT factors (Strengths, Weaknesses, Opportunities, and Threats). At the core of the model, AI plays a central role in enhancing learning through technologies such as ClassPoint AI, AI Chatbots, and Squirrel AI, which facilitate personalized learning, interactive engagement, and automated tutoring. These AI-driven tools enable students to access Islamic teachings, improve Quranic memorization, and enhance prayer practice with real-time feedback.

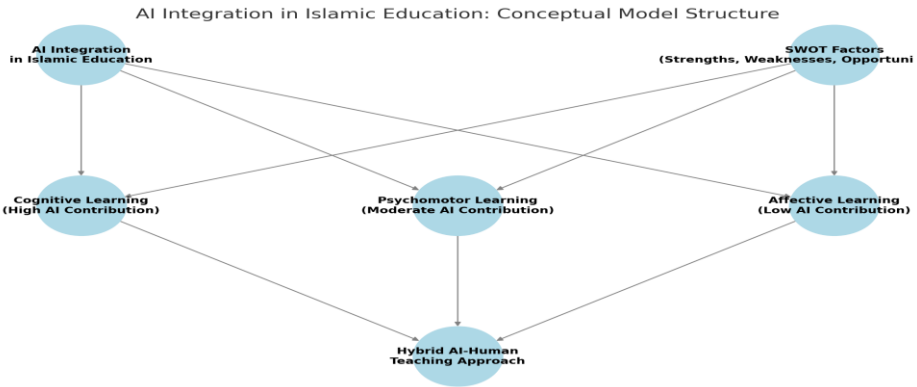

FIGURE 4. Conceptual model structure.

The model classifies AI's contribution into three learning domains. In cognitive learning, AI plays a dominant role, aiding in knowledge recall, comprehension, application, and analysis. AI tools help students memorize Quranic verses, analyze Islamic jurisprudence, and assess religious knowledge systematically. In psychomotor learning, AI provides moderate support by guiding students in performing ritualistic movements, such as prayer postures and wudu (ablution) steps, using AI-powered motion detection and simulation-based training. However, AI's role in affective learning is minimal, as it lacks emotional intelligence and moral reasoning. Islamic education heavily relies on human mentorship to instill ethical values, and AI, despite its technological advancements, cannot replace the spiritual and emotional aspects of religious guidance.

The effectiveness of AI integration is influenced by SWOT factors, acting as moderating variables. AI's strengths include enhancing learning efficiency, enabling self-paced education, and increasing accessibility to Islamic studies. However, its weaknesses lie in its inability to nurture affective and moral development, ethical limitations, and susceptibility to misinformation. The opportunities presented by AI include its potential to bridge educational gaps, support remote learning, and improve personalized religious instruction. Nevertheless, threats such as over-reliance on technology, diminished teacher-student interactions, and socio-cultural resistance must be addressed to ensure AI's successful implementation in Islamic education.

Given these factors, the final outcome of the model suggests a hybrid AI-human teaching approach as the optimal solution. AI should be leveraged to support knowledge acquisition, assessments, and ritual-based training, while human educators should remain at the forefront of ethical, emotional, and spiritual guidance. This balance ensures that AI complements rather than replaces traditional Islamic education, maintaining its ethical and pedagogical integrity. Educators and policymakers must establish clear ethical guidelines and pedagogical strategies to align AI-based learning with Islamic principles, preventing the risk of misinterpretation and misuse.

In conclusion, while AI offers significant advantages in cognitive and psychomotor learning, its role in affective learning remains limited. To maximize AI's potential while safeguarding the spiritual and moral aspects of Islamic education, a blended learning model that integrates AI with human mentorship should be adopted. This ensures that AI enhances rather than disrupts the Islamic educational system, preserving both technological innovation and religious values for future generations.

VI. CONCLUSION

The findings of this study confirm that AI plays a significant role in enhancing cognitive and psychomotor learning within Islamic religious education. AI-driven tools such as Class Point AI, AI Chatbots, and Squirrel AI have demonstrated effectiveness in supporting knowledge recall, personalized learning, and skill-based instruction, particularly in Quranic recitation, prayer movements, and ethical decision-making. However, AI remains limited in fostering students' affective and moral development, as it lacks emotional intelligence, spiritual depth, and the mentorship required to instill Islamic ethical values.

The research objectives have been successfully addressed, demonstrating that AI effectively enhances cognitive and psychomotor aspects but struggles in affective learning. This aligns with existing literature that highlights AI's strengths in adaptive learning models while acknowledging its challenges in emotional engagement and ethical teaching. Furthermore, the study provides a theoretical contribution by integrating Bloom's Taxonomy into AI-driven learning frameworks, offering a structured perspective on AI's effectiveness in different learning domains. From a practical standpoint, the study provides valuable insights for educators, policymakers, and Islamic institutions regarding the strategic integration of AI in Islamic education. While AI can optimize teaching methodologies and enhance personalized learning experiences, human teachers remain irreplaceable in spiritual guidance and moral instruction. Therefore, a blended learning approach—where AI complements human educators—should be prioritized to maximize learning outcomes.

Future research should explore the development of ethical AI systems that align with Islamic values, ensuring responsible algorithmic decision-making while minimizing biases. Further studies are needed to

investigate blended learning models that integrate AI with traditional teaching methods to preserve Islamic pedagogical values. Additionally, emotionally intelligent AI tutors should be explored to enhance AI's responsiveness to students' affective and moral development. Research should also address AI accessibility and inclusivity, especially in Islamic schools in developing regions, ensuring equitable access to AI-enhanced learning. Longitudinal studies are necessary to evaluate AI's long-term impact on religious knowledge, ethical reasoning, and spiritual growth. Lastly, research should focus on mitigating AI-induced student dependency, ensuring that AI encourages critical thinking and deep engagement with Islamic teachings, rather than simply providing instant answers. By considering both the opportunities and challenges of AI, its implementation in Islamic religious education can be optimized to enhance learning experiences while preserving Islamic ethical and pedagogical principles.

Funding Statement

This research did not receive any financial support.

Author Contribution

Andri Nirwana AN: Conceptualization, Methodology, Writing –review & editing, Mohamad Ali: Supervision, Project administration. Alfan Rifai: Methodology, Writing –review & editing, Investigation. Triono Ali Mustafa: Conceptualization, Methodology, Writing –review & editing, Yusuf Mukhtar Taqiyuddin: Investigation. Muh. Nur Rochim Maksum: Data curation, Formal analysis, Writing – original draft. Viky Nur Vambudi: Visualization, Resources, Writing – original draft, Mush'ab Umar Budihargo: Software, Validation, Writing – original draft. Muhammad Dzikrul Fikri: Investigation, Data curation, Writing – review & editing.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

All data collected from this research is sourced from the Scopus and Google Scholars Database from 2017 to 2023.

Acknowledgments

All praise is due to Allah Ta'ala, who has made it easy for the researchers to complete this article. May blessings and peace always be upon Prophet Muhammad ﷺ. The researchers would like to express their deepest gratitude to their parents, spouses, and all family members who have consistently provided support and encouragement. Without their support and assistance, the completion of this article would not have been possible. The researchers would also like to express their gratitude to all individuals who contributed and assisted in the successful completion of this article.

This article is a collaborative effort of Andri Nirwana, Alfan Rifai, Mohamad Ali, Triono Ali Mustafa, Viky Nur Vambudi, Muh. Nur Rochim Maksum, Yusuf Mukhtar Taqiyuddin, Mush'ab Umar Budihargo, and Muhammad Dzikrul Fikri. Their combined efforts have made it possible to present this article as a source of knowledge, reference, and insight for Muslims, especially regarding the use of Artificial Intelligence (AI) in the field of education. May this work serve as a valuable contribution to the development of Islamic education in the modern era.

We would also like to express our gratitude to all academics at Muhammadiyah University of Surakarta, LPPI UMS, and all lecturers at the Faculty of Islamic Studies who have provided support for the completion of this researchand an anonymous reviewer for providing valuable input on these papers. We are grateful to the four reviewers for providing valuable comments and suggestions.

REFERENCES

1. A.N., A. N., Mahmudulhassan, M., Marshal, F. D., Muthoifin, M., & Fadli, N. (**2024**). Human rights and social justice in Quranic contexts: A global trend. *Legality: Jurnal Ilmiah Hukum, 32*(2), 453–471.

2. Abdelrady, A. H., & Akram, H. (**2022**). An empirical study of ClassPoint tool application in enhancing EFL students' online learning satisfaction. *Systems, 10*(5).
3. Achyani, F., & Riyardi, A. (**2024**). Indonesian bus stations: Mixed-use, government capital funding, and its determinants and impact. *Riset Akuntansi Dan Keuangan Indonesia, 8*(3), 301–308.
4. Adams, C., Pente, P., Lemermeyer, G., & Rockwell, G. (**2023**). Ethical principles for artificial intelligence in K-12 education. *Computers and Education: Artificial Intelligence, 4*.
5. Akarvardar, K., & Wong, H.-S. P. (**2023**). Technology prospects for data-intensive computing. *Proceedings of the IEEE, 111*(1), 92–112.
6. Ali, M., Tamami, F. Q. A., Rahmawati, S., Elbanna, M., & AN, A. N. (**2025**). Tracking education transformation towards sustainable development goals: A bibliometric review on the influence of socioeconomic factors in the education ecosystem. *Journal of Lifestyle and SDGs Review, 5*(1), e03295–e03295.
7. AN, A. N., M., M., & W. (**2024**). Bibliometric analysis of Islamic education and character development in religious education practices in Indonesia. *Pakistan Journal of Life and Social Sciences (PJLSS), 22*(2), 1231–1245.
8. An, A. N., Amir, A. M., Husain, M. Z. B., Ismail, F. H., Sahimi, M. S. B., Fansuri, F., Amri, M., Arfan, F., & Rhain, A. (**2025**). Millennial era Islamic parenting studies: A bibliometric analysis utilizing the Scopus database. *Multidisciplinary Reviews, 8*(1), 1–12.
9. AN, A. N., Mahmudulhassan, M., Ali, M., Muthoifin, M., Waston, W., & Senathirajah, A. R. B. S. (**2024**). The intersection of Quranic studies and modern technology: A bibliometric analysis of academic publications from 2000 to 2024. *Qubahan Academic Journal, 4*(4), 178–190.
10. Andri Nirwana, A. N., Affani, S. F., Junaedi, D., Akhyar, S., Suri, S., Nurrohim, A., Dahliana, Y., & Azizah, A. (**2024**). A historical review on mapping the evolution and direction of leadership in Islam: Challenges and development opportunities. *Multidisciplinary Reviews, 7*(6).
11. Antun, V., Renna, F., Poon, C., Adcock, B., & Hansen, A. C. (**2020**). On instabilities of deep learning in image reconstruction and the potential costs of AI. *Proceedings of the National Academy of Sciences of the United States of America, 117*(48), 30088–30095.
12. Anwar, S., Sukisno, S., Waston, W., Nirwana, A., Utami, Y., Reistanti, A. P., Nurhartanto, A., & Muthoifin, M. (**2024**). Development of the concept of Islamic education to build and improve the personality of school-age children. *Multidisciplinary Reviews, 7*(8), 2024139.
13. Apriantoro, M. S., Puspa, E. R., Yafi, D. I., Putri, D. A., & Irfan Rosyadi, R. (**2023**). Beyond mortgages: Islamic law and the ethics of credit financing for public housing. *Profetika: Jurnal Studi Islam, 24*(02), 196–206.
14. Ardiansyah, Mahmudulhassan, Daud, Z., Salleh, N. M., AN, A. N., Waston, & Muthoifin. (**2024**). Mapping the evolution and trends in Quran memorization, cognitive learning, and educational research: A comprehensive bibliometric analysis utilizing the Scopus database. *Multidisciplinary Reviews*.
15. Ardiansyah, Waston, Mahmudulhassan, Daud, Z., Salleh, N. M., AN, A. N., & Muthoifin. (**2024**). Tracing trends in Quran memorization and cognitive learning: A bibliometric analysis from the Scopus database. *Pakistan Journal of Life and Social Sciences (PJLSS), 22*(2), 1493–1509.
16. Arifudin, O. (**2023**). Analisis teori taksonomi Bloom pada pendidikan di Indonesia. *Jurnal Al-Amar (JAA), 4*(1), 13–22.
17. Arviollisa, P. A. D., Chan, A., & Nirmalasari, H. (**2021**). Pengaruh artificial intelligence terhadap customer experience (Studi pada pengguna Gojek Bandung, Jawa Barat). *AdBispreneur, 6*(2), 115.
18. Asif, A. R., & Rahmadi, F. A. (**2017**). Hubungan tingkat kecanduan gadget dengan gangguan emosi dan perilaku remaja usia 11-12 tahun. *Faculty of Medicine*.
19. Ayunda, R. (**2021**). Perlindungan data nasabah terkait pemanfaatan artificial intelligence dalam aktifitas perbankan di Indonesia. *Jurnal Komunikasi Hukum, 7*(2), 663–677.
20. Bakpayev, M., Baek, T. H., van Esch, P., & Yoon, S. (**2022**). Programmatic creative: AI can think but it cannot feel. *Australasian Marketing Journal, 30*(1), 90–95.
21. Barotun Mabaroh, & Sugianti, L. (**2021**). Gadget addiction and the students' achievement. *International Journal of Social Learning (IJSL), 1*(3), 321–332.
22. Bartoletti, I. (**2019**). AI in healthcare: Ethical and privacy challenges. *Lecture Notes in Computer Science, 11526*, 7–10.
23. Borenstein, J., & Howard, A. (**2021**). Emerging challenges in AI and the need for AI ethics education. *AI and Ethics, 1*(1), 61–65.
24. Budiono, A., M Junaidi, Rizka, R., Jan Alizea Sybelle, Samudera, K., & Ichsan, I. M. (**2023**). Legal policies on welfare approaches in forest management in Indonesia: Policy study at Perum Perhutani KPH Saradan. *Law and Justice, 8*(1), 95–110.
25. Chen, L., Chen, P., & Lin, Z. (**2020**). Artificial intelligence in education: A review. *IEEE Access, 8*, 75264–75278.
26. Cholissodin, I., & Soebroto, A. A. (**2021**). AI, machine learning & deep learning (Teori & implementasi).
27. Chui, M. (**2023**). *TheStateOfAI 2023: Generative AI breakout year*. McKinsey. https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-in-2023-generative-ais-breakout-year
28. Cox, A. M., Pinfield, S., & Rutter, S. (**2019**). The intelligent library: Thought leaders' views on the likely impact of artificial intelligence on academic libraries. *Library Hi Tech, 37*(3), 418–435.

29. Crompton, H., Burke, D., & Lin, Y. C. (**2019**). Mobile learning and student cognition: A systematic review of PK-12 research using Bloom's Taxonomy. *British Journal of Educational Technology, 50*(2), 684–701.
30. Currie, G., & Barry, K. (**2023**). ChatGPT in nuclear medicine education. *Journal of Nuclear Medicine Technology, 51*(3), 247–254.
31. Damayanti, D., & Nuzuli, A. K. (**2023**). Evaluasi efektivitas penggunaan teknologi komunikasi dalam pengajaran metode pendidikan tradisional di sekolah dasar. *Journal of Scientech Research and Development, 5*(1), 208–219.
32. Dong, Y., Xu, C., Chai, C. S., & Zhai, X. (**2020**). Exploring the structural relationship among teachers' technostress, technological pedagogical content knowledge (TPACK), computer self-efficacy and school support. *Asia-Pacific Education Researcher, 29*(2), 147–157.
33. Emmert-Streib, F., Yli-Harja, O., & Dehmer, M. (**2020**). Artificial intelligence: A clarification of misconceptions, myths and desired status. *Frontiers in Artificial Intelligence, 3*.
34. Farooqi, M. T. K., Amanat, I., & Awan, S. M. (**2024**). Ethical considerations and challenges in the integration of artificial intelligence in education: A systematic review. *Journal of Excellence in Management Sciences, 3*(4), 35–50.
35. Fergina, A., Syarifuddin Ondeng, & Saprin. (**2024**). Reconstructing the role of parents and teachers in Islamic education. *IJGIE (International Journal of Graduate of Islamic Education), 5*(2), 158–169.
36. Fernández-Herrero, J. (**2024**). Evaluating recent advances in affective intelligent tutoring systems: A scoping review of educational impacts and future prospects. *Education Sciences, 14*(8), 839.
37. Firnando, H. G., & Wahyudi, M. (**2024**). The role of artificial intelligence in shaping the Islamic worldview of the digital economy. *Journal of Islamic Economics and Philanthropy, 6*(3), 231–249.
38. González-Calatayud, V., Prendes-Espinosa, P., & Roig-Vila, R. (**2021**). Artificial intelligence for student assessment: A systematic review. *Applied Sciences, 11*(12).
39. Guilherme, A. (**2019**). AI and education: The importance of teacher and student relations. *AI and Society, 34*(1), 47–54.
40. Hakim, F., Fadlillah, A., & Rofiq, M. N. (**2024**). Artificial intellegence (AI) dan dampaknya dalam distorsi pendidikan Islam. *Urwatul Wutsqo: Jurnal Studi Kependidikan Dan Keislaman, 13*(1), 129–144.
41. Hanifah Kusumastuti, Imron Rosyadi, & Rizka. (**2023**). Limitations on the President's term of office from Maslahah Mursalah's perspective (Ijtihad as determination of Islamic law). *Journal of Transcendental Law, 5*(1), 16–27.
42. Hao, K., Sheldon, N., & Sheldon, N. (**2019**). China has started a grand experiment in AI education.
43. Hidayah, N., Wahyuningrum, D., Kamara, I. S., & Rahmah, J. L. (**2023**). Determinants of Green GDP in ASEAN-5 countries. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan, 24*(2), 256–264.
44. Hilda Rafika Waty. (**2023**). Pengembangan media pembelajaran interaktif E-Learning Pendidikan Agama Islam melalui aplikasi Classpoint. *Journal of Management in Islamic Education, 4*(1), 1–10.
45. Holmes, W., & Tuomi, I. (**2022**). State of the art and practice in AI in education. *European Journal of Education, 57*(4), 542–570.
46. Huang, J., Saleh, S., & Liu, Y. (**2021**). A review on artificial intelligence in education. *Academic Journal of Interdisciplinary Studies, 10*, 206.
47. Hwang, G. J., Xie, H., Wah, B. W., & Gašević, D. (**2020**). Vision, challenges, roles and research issues of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence, 1*.
48. Imam Tabroni, & Rahmania, S. (**2022**). Implementation of Akhlaqul Karimah through Islamic Religious Education approach in early children. *EAJMR: East Asian Journal of Multidisciplinary Research, 1*(1), 33–40.
49. Imawan, M., Pettalongi, A., & Nurdin, N. (**2023**). Pengaruh teknologi terhadap pendidikan karakter peserta didik di era. *Prosiding Kajian Islam Dan Integrasi Ilmu Di Era Society 5.0 (KIIIES 5.0) Pascasarjana Universitas Islam Negeri Datokarama Palu 2023*, 323–328.
50. Javed, A. R., Shahzad, F., Rehman, S. U., Zikria, Y. B., Razzak, I., Jalil, Z., & Xu, G. (**2022**). Future smart cities requirements, emerging technologies, applications, challenges, and future aspects. *Cities, 129*.
51. Jumadi, J., & Priyana, Y. (**2016**). Development and evaluation of Web GIS application for groundwater management of Karanganyar Regency. *Forum Geografi, 29*(2), 165.
52. Kadafi, A., Mardiyah, R. R., & Rahmawati, N. K. D. (**2019**). Upaya menurunkan prokrastinasi akademik mahapeserta didik melalui bimbingan kelompok Islami. *JURNAL EDUKASI: Jurnal Bimbingan Konseling, 4*(2), 181–193.
53. Kandiri, K., & Arfandi, A. (**2021**). Guru sebagai model dan teladan dalam meningkatkan moralitas siswa. *Edupedia: Jurnal Studi Pendidikan Dan Pedagogi Islam, 6*(1), 1–8.
54. Kartini, N. E., Nurdin, E. S., Hakam, K. A., & Syihabuddin, S. (**2022**). Telaah revisi teori domain kognitif taksonomi Bloom dan keterkaitannya dalam kurikulum pendidikan agama Islam. *Jurnal Basicedu, 6*(4), 7292–7302.
55. Kerwanto, K., Hasani, M. A. F. Al, & Hamdani, M. M. (**2024**). Contextual interpretation (Study of epistemology, history, variety of books and examples of interpretation). *QiST: Journal of Quran and Tafseer Studies, 3*(3), 451–470.
56. Khoir, T., Fadzil Abdul Hanid, M., Khasan, M., Azean Atan, N., Zulfa Elizabeth, M., & Hashim, S. (**2024**). Enhancing Fiqh learning outcomes through artificial intelligence applications at Sekolah Indonesia Johor Bahru. *Edelweiss Applied Science and Technology, 8*(4), 1764–1777.
57. Kocielnik, R., Amershi, S., & Bennett, P. N. (**2019**). Will you accept an imperfect AI? Exploring designs for adjusting end-user expectations of AI systems. *Conference on Human Factors in Computing Systems - Proceedings*.

58. Krafft, P. M., Young, M., Katell, M., Huang, K., & Bugingo, G. (**2020**). Defining AI in policy versus practice. *AIES 2020 - Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society*, 72–78.
59. Kundori, K. (**2022**). Peningkatan profesionalitas guru melalui Computer Based Training (CBT) pelayaran. *Jurnal Pengabdian Mandiri, 1*(2), 111–116.
60. Laksana, S. D. (**2021**). Pentingnya pendidikan karakter dalam menghadapi teknologi pendidikan abad 21. *Jurnal Teknologi Pembelajaran, 1*(01), 14–22.
61. Lau, V. I., Binnie, A., Basmaji, J., Baig, N., Opgenorth, D., Cameron, S., O'Hearn, K., McDonald, E., Senaratne, J., Sligl, W., Bagshaw, S. M., & Tsang, J. (**2021**). Needs assessment survey identifying research processes which may be improved by automation or artificial intelligence: ICU community modeling and artificial intelligence to improve efficiency (ICU-Comma). *Journal of Intensive Care Medicine*.
62. Liu, J., & Fu, F. (**2023**). Convolutional neural network model by deep learning and teaching robot in keyboard musical instrument teaching. *PLOS ONE, 18*(10).
63. Luan, H., Geczy, P., Lai, H., Gobert, J., Yang, S. J., Ogata, H., ... & Tsai, C. C. (**2020**). Challenges and future directions of big data and artificial intelligence in education. *Frontiers in Psychology, 11*.
64. Magdalena, I., Fajriyati Islami, N., Rasid, E. A., & Diasty, N. T. (**2020**). Tiga ranah taksonomi Bloom dalam pendidikan. *EDISI: Jurnal Edukasi Dan Sains, 2*(1), 132–139.
65. Mahlknecht, A., Engl, A., Piccoliori, G., & Wiedermann, C. J. (**2023**). Supporting primary care through symptom checking artificial intelligence: A study of patient and physician attitudes in Italian general practice. *BMC Primary Care, 24*(1).
66. Mahmudulhassan, M., Waston, W., & Nirwana AN, A. (**2023**). The rights and status of widows in Islam: A study from the perspective of multicultural Islamic education in the context of Bangladesh. *Multicultural Islamic Education Review, 1*(1), 01–14.
67. Mahmudulhassan, Waston, W., Nirwana, A., Amini, S., Sholeh, M. M. A., & Muthoifin, M. (**2024**). A moral-based curriculum to improve civilization and human resource development in Bangladesh. *Multidisciplinary Reviews, 7*(8), 2024137.
68. Manongga, D., Rahardja, U., Sembiring, I., Lutfiani, N., & Yadila, A. B. (**2022**). Dampak kecerdasan buatan bagi pendidikan. *ADI Bisnis Digital Interdisiplin Jurnal, 3*(2), 41–55.
69. Maphosa, V., & Maphosa, M. (**2022**). Artificial intelligence in project management research: A bibliometric analysis. *Journal of Theoretical and Applied Information Technology, 100*(16), 5000–5012.
70. Marthoenis, M., Nirwana, A., & Fathiariani, L. (**2019**). Prevalence and determinants of posttraumatic stress in adolescents following an earthquake. *Indian Journal of Psychiatry, 61*(5), 526.
71. Martins, R. M., & Von Wangenheim, C. G. (**2023**). Findings on teaching machine learning in high school: A ten-year systematic literature review. *Informatics in Education, 22*(3), 421–440.
72. Masduki, M., Suwarsono, S., & Teguh Budiarto, M. (**2024**). Relationships between teacher's instructional strategies and their knowledge: A study of seventh-grade mathematics teachers. *JRAMathEdu (Journal of Research and Advances in Mathematics Education)*.
73. Mika, A. P., Martin, J. R., Engstrom, S. M., Polkowski, G. G., & Wilson, J. M. (**2023**). Assessing ChatGPT responses to common patient questions regarding total hip arthroplasty. *Journal of Bone and Joint Surgery, 105*(19), 1519–1526.
74. Misnawati Misnawati. (**2023**). ChatGPT: Keuntungan, risiko, dan penggunaan bijak dalam era kecerdasan buatan. *Prosiding Seminar Nasional Pendidikan, Bahasa, Sastra, Seni, Dan Budaya, 2*(1), 54–67.
75. Mohamed, R. A. K., Ali, A. H., & Nasir, M. (**2021**). Aplikasi ranah kognitif Anderson & Krahthwohl dalam pengajaran dan pembelajaran pantun di sekolah dasar. *Journal of Humanities and Social Sciences, 3*(3), 110–118.
76. Montemayor, C., Halpern, J., & Fairweather, A. (**2022**). In principle obstacles for empathic AI: Why we can't replace human empathy in healthcare. *AI and Society, 37*(4), 1353–1359.
77. Monticelli, M., Francisco, R., Brasil, S., Marques-da-Silva, D., Rijoff, T., Pascoal, C., Jaeken, J., Videira, P. A., & dos Reis Ferreira, V. (**2022**). Stakeholders' views on drug development: The congenital disorders of glycosylation community perspective. *Orphanet Journal of Rare Diseases, 17*(1).
78. Morshidi, A., Zakaria, N. S., Mohammad Ridzuan, M. I., Idris, R. Z., Azueryn Annatassia Dania Aqeela, & Mohd Radzi, M. S. (**2024**). Artificial intelligence and Islam: A bibliometric-thematic analysis and future research direction. *Semarak International Journal of Machine Learning, 1*(1), 41–58.
79. Muthoifin, Abuzar, M., Mahmudulhassan, Afiyah, I., Nirwana, A., Nuha, Setianto, G., & Waston. (**2024**). Fostering multicultural community harmony to enhance peace and sustainable development goals (SDG's). *Journal of Lifestyle and SDGs Review, 5*(1), e01687.
80. Muthoifin, Hamid, N., Sutama, Hidayat, S., Waston, Nirwana, A., & Muthoifin. (**2024**). Creative leadership: An implementing study of transformative leadership models in high school for sustainable development goals. *Journal of Lifestyle and SDGs Review, 5*(1), e01686.
81. Nafiati, D. A. (**2021**). Revisi taksonomi Bloom: Kognitif. Afektif, dan.
82. Nikonova, E., Yakhyaeva, K., Pivkina, N., & Schetinina, A. (**2023**). Using artificial intelligence tools in teaching a foreign language in higher technical institutions. *European Journal of Contemporary Education, 12*(2), 578–589.

83. Nirwana, A., Arfan, F., Muthoifin, Daud, Z., Amin, S., Hidayat, S., & Marshal, F. D. (**2024**). The role of traditional salt production in achieving halal standards of the Ulamaconsultative council: Implications for sustainable development goals. *Journal of Lifestyle and SDGs Review, 4*(2), e01721.
84. Nirwana, A., Suri, S., Junaedi, D., Sayed Akhyar, Ismail, F. H., Fansuri, F., bin Sahimi, M. S., Bin Husain, M. Z., Amri, M., Arfan, F., Hidayat, S., & Nur Hidayat, W. (**2024**). Exploration of Wasatiyah diction to realize sustainable tolerance between religious communities: A study of the translation of the Quran of the Ministry of Religious Affairs of the Republic of Indonesia. *Revista de Gestão Social e Ambiental, 18*(6), e05717.
85. Nur Afif, & Adlan Nawawi. (**2024**). Optimalisasi pengajaran Al-Quran dan Hadis melalui teknologi kecerdasan buatan: Tantangan dan strategi integrasi. *EduInovasi: Journal of Basic Educational Studies, 4*(3), 1829–1848.
86. Oktaviani, R., & Dewi, D. P. (**2020**). Analisis motivasi belajar siswa SMPN 8 Cimahi menggunakan media Visual Basic for Application berbasis Microsoft Excel pada materi pecahan. *JURING (Journal for Research in Mathematics Learning), 3*(2), 133.
87. Pack, A., & Maloney, J. (**2023**). Potential affordances of generative AI in language education: Demonstrations and an evaluative framework. *Teaching English with Technology, 23*(2), 4–24.
88. Parapadakis, D. (**2020**). Can artificial intelligence help predict a learner's needs? Lessons from predicting student satisfaction. *London Review of Education, 18*(2), 178–195.
89. Pasha, N. A., & Gumay, K. F. (**2023**). Hedonism reflected on celebrities Instagram (Celebgram) account. *Jurnal Penelitian Humaniora, 24*(1), 49–59.
90. Pedró, F. (**2019**). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. UNESCO.
91. Prieto-Gutierrez, J.-J., Segado-Boj, F., & França, F. D. S. (**2023**). Artificial intelligence in social science: A study based on bibliometrics analysis. *Human Technology, 19*(2), 149–162.
92. Prikshat, V., Islam, M., Patel, P., Malik, A., Budhwar, P., & Gupta, S. (**2023**). AI-augmented HRM: Literature review and a proposed multilevel framework for future research. *Technological Forecasting and Social Change, 193*.
93. Rajiani, I., Prayitno, H. J., Kot, S., Ismail, N., & Iswarani, W. P. (**2023**). Developing local education content supplementary textbook innovation by referencing to women in floating market. *Indonesian Journal on Learning and Advanced Education (IJOLAE), 5*(2), 136–150.
94. Rhain, A., Rizqi, A. M., Naufal, A., Kurniawan, M. I., Azizah, A., Nugroho, K., & AN, A. N. (**2024**). Reconstructing deliberative practices for building religious character: A Quranic study of Ali Imran: 159 in alignment with the United Nations' sustainable development goals. *Journal of Lifestyle and SDGs Review, 4*(2), e01914.
95. Rizvi, S., Waite, J., & Sentance, S. (**2023**). Artificial intelligence teaching and learning in K-12 from 2019 to 2022: A systematic literature review. *Computers and Education: Artificial Intelligence, 4*.
96. Rostini, D., Hidayatillah, F., Suhendar, E., & Rananda Saputra, W. (**2023**). Implementasi teknologi kolaboratif dalam meningkatkan keterampilan komunikasi dan kolaborasi siswa SMK. *JIIP - Jurnal Ilmiah Ilmu Pendidikan, 6*(9), 6903–6909.
97. Saihu, M. (**2022**). Al-Qur'an and the need for Islamic education to artificial intelligence. *Mumtaz: Jurnal Studi Al-Quran Dan KeIslaman, 6*(1), 18–31.
98. Sari Hernawati, Hafizh, M., & Muhammad Nur Faizi Arya. (**2024**). Adjusting the ideal Islamic religious education curriculum to the development of AI-based technology. *Progresiva: Jurnal Pemikiran Dan Pendidikan Islam, 13*(01), 129–144.
99. Sari, M. (**2020**). Natural science: Jurnal penelitian bidang IPA dan pendidikan IPA. *Natural Science: Jurnal Penelitian Bidang IPA Dan Pendidikan IPA, 6*(1), 41–53.
100. Sekaran, K., Chandana, P., Jeny, J. R. V., Meqdad, M. N., & Kadry, S. (**2020**). Design of optimal search engine using text summarization through artificial intelligence techniques. *Telkomnika (Telecommunication Computing Electronics and Control), 18*(3), 1268–1274.
101. Setiawan, A., & Luthfiyani, U. K. (**2023**). Penggunaan ChatGPT untuk pendidikan di era Education 4.0: Usulan inovasi meningkatkan keterampilan menulis. *JURNAL PETISI (Pendidikan Teknologi Informasi), 4*(1), 49–58.
102. Shan, J., & Eliyas, S. (**2024**). Exploring AI facial recognition for real-time emotion detection: Assessing student engagement in online learning environments. *2024 3rd International Conference on Artificial Intelligence For Internet of Things (AIIoT)*, 1–6.
103. Shen, Y., Yu, P., Lu, H., Zhang, X., & Zeng, H. (**2021**). An AI-based virtual simulation experimental teaching system in space engineering education. *Computer Applications in Engineering Education, 29*(2), 329–338.
104. Shi, Y., Prieto, P. L., Zepel, T., Grunert, S., & Hein, J. E. (**2021**). Automated experimentation powers data science in chemistry. *Accounts of Chemical Research, 54*(3), 546–555.
105. Shneiderman, B. (**2022**). *Human-centered AI*. Oxford University Press.
106. Shofiyyah, N. A., Lesmana, O., & Tohari, H. (**2024**). Metamorphosis of Islamic religious education learning method: Classic approach converted by artificial intelligence (AI). *Jurnal Pendidikan: Riset Dan Konseptual, 8*(2), 265.
107. Shohib, M. W., Azani, M. Z., Inayati, N. L., Dartim, D., & Nubail, A. (**2024**). Islamic perspective on organizational citizenship behavior among academic staff in Indonesian state Islamic higher education: Is it effective? *Suhuf, 36*(2).
108. Sholeh, M. M. A., Waston, Nirwana, A., & Mahmudulhassan, M. (**2024**). The reasons of lifelong education for the sustainable development goals (SDGs): The Islamic epistemology perspective. *Journal of Lifestyle and SDGs Review, 5*(2), e02988.

109. Sholeh, M., Rusydiyah, E. F., & Abu Bakar, M. Y. (**2024**). Integration of AI chatbots in Islamic religious education: Potential and challenges from a doctoral student perspective. *AL-ISHLAH: Jurnal Pendidikan, 16*(2).
110. Silva, L. D., Pranajaya, S. A., & Hadi, S. (**2021**). Imajinasi tontonan televisi terhadap tuntunan diri anak. *Borneo Journal Of Primary Education, 1*(1), 37–53.
111. Sugiyono. (**2017**). *Metode penelitian pendidikan* (25th ed.). Alfabeta.
112. Sukisno, Waston, Nirwana, A., Mahmudulhassan, & Muthoifin, M. (**2024**). Parenting problems in the digital age and their solution development in the frame of value education. *Multidisciplinary Reviews, 7*(8), 2024163.
113. Suwarsono, Setiadji, B., Asy'arie, M., Waston, Nirwana, A., & Muthoifin. (**2024**). The future of the civilization of the ummah is reviewed from the sociology of education for the sustainable development goals (SDG's). *Journal of Lifestyle and SDGs Review, 4*, e01688.
114. Syafrin, Y., Kamal, M., Arifmiboy, A., & Husni, A. (**2023**). Pelaksanaan pembelajaran pendidikan agama Islam. *Educativo: Jurnal Pendidikan, 2*(1), 72–77.
115. Syukur, F., Maghfurin, A., Marhamah, U., & Phaosan Jehwae. (**2024**). Integration of artificial intelligence in Islamic higher education: Comparative responses between Indonesia and Thailand. *Nazhruna: Jurnal Pendidikan Islam, 7*(3), 531–553.
116. Tahiru, F. (**2021**). AI in education: A systematic literature review. *Journal of Cases on Information Technology, 23*(1), 1–20.
117. Tao, F. (**2022**). A new harmonisation of art and technology: Philosophic interpretations of artificial intelligence art. *Critical Arts, 36*(1–2), 110–125.
118. Taufik, T., Lestari, R., & Ashfi Raihana, P. (**2023**). Quality of life in the elderly Qur'an memorizers. *Asian Journal of Islamic Psychology*, 15–20.
119. Thakkar, J., Raut, P., Doshi, Y., & Parekh, K. (**2018**). Erasmus AI Chatbot. *International Journal of Computer Sciences and Engineering, 6*(10), 498–502.
120. Thoyib, F. M., Jinan, M., & Hidayat, S. (**2023**). Penggunaan teknologi multimedia dalam mendukung pembelajaran bahasa Arab dengan buku Al-'Arabiyyah Bayna Yadayk. *Iseedu: Journal of Islamic Educational Thoughts and Practices, 7*(2), 213–222.
121. Undari, R., Muthali'in, A., & Prasetiyo, W. H. (**2022**). Etika komunikasi siswa dalam pembelajaran daring: Studi kualitatif pada pembelajaran PPKn. *Jurnal Penelitian Ilmu-Ilmu Sosial, 3*(1), 74–89.
122. Vallance, C. (**2023**). AI diprediksi akan gantikan jutaan pekerjaan dan juga akan ciptakan pekerjaan baru. *BBC*. https://www.bbc.com/indonesia/articles/cd17750mel7o
123. Wahid, A., Ibrahim, M., Shomad, B. A., Nirwana AN, A., & Damanhuri, D. (**2023**). Utilizing zuhd hadiths for upper-class crime prevention. *Jurnal Ilmiah Islam Futura, 23*(2), 263.
124. Wahyuningtyas, E. (**2021**). Rancang bangun game edukasi agama Islam untuk anak menggunakan artificial intelligence laporan akhir.
125. Waston, Muthoifin, Amini, S., Ismail, R., Aryani, S. A., & Nirwana, A. (**2024**). Religiosity to minimize violence: A study of Solo Indonesian society. *Revista de Gestão Social e Ambiental, 18*(6), e05426.
126. Waston, Wiranto, E. B., Ali, M., Achmad, N., Ramdhani, D., Muthoifin, & AN, A. N. (**2024**). Islamophobia and communism: Perpetual prejudice in contemporary Indonesia. *Revista de Gestão Social e Ambiental, 18*(2), e04875.
127. Waty, H. R. (**2023**). Pengembangan media pembelajaran interaktif E-Learning Pendidikan Agama Islam melalui aplikasi Classpoint. *Journal of Management in Islamic Education, 4*(1), 1–10.
128. Wiranto, E. B., & Suwartini, S. (**2019**). Artificial intelligence and trustworthy principles in global Islamic education. *Mind, Machine, and Metaphor*, 3–33.
129. Yahya, A. M., Hasan, M. A. K., & AN, A. N. (**2022**). Rights protection guarantee for the partners of Indonesian Gojek company according to Labour Laws no 13 of 2033 and Maqasid. *Al-Manahij: Jurnal Kajian Hukum Islam, 16*(1), 115–132.
130. Yahya, M. A., Mohd Arif, M. I. A., Ahmad Rosli, M. S. D., M Suaree, N. A. S., Adenan, F., W Abd Rahman, W. F. I., Ab Rahim, S. F. A. R., & Moidin, S. (**2024**). Transformation of learning through technology and artificial intelligence: An analysis of teaching in the introduction to Islamic law course. *International Journal of Academic Research in Progressive Education and Development, 13*(3).
131. Zhang, K., & Aslan, A. B. (**2021**). AI technologies for education: Recent research & future directions. *Computers and Education: Artificial Intelligence, 2*.
132. Zhang, Z. (**2023**). The impact of the artificial intelligence industry on the number and structure of employments in the digital economy environment. *Technological Forecasting and Social Change, 197*.
133. Zulrahman, M. F., & Syahputra, H. (**2023**). Pemanfaatan Artificial Intelligence Markup Language (AIML) dan Latent Semantic Analysis (LSA) dalam pengembangan chatbot E-Education. *INTECOMS: Journal of Information Technology and Computer Science, 6*(1), 36–43.