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Opportunities, Challenges and Ethics of Artificial Intelligence Implementation in Teaching Islamic Religious Education in Public Universities: A Case Study in South Kalimantan

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Abstracts:
This research presents a comprehensive overview of the opportunities and challenges in the utilization of Artificial Intelligence (AI) to improve the quality of Islamic Religious Education teaching in universities in South Kalimantan. Furthermore, the researcher explores how the ethics of using AI in Islamic Education learning in public universities. The research method used is qualitative with the type of case study. Data collection techniques used observation, interviews, and document studies. The research sample was PAI lecturers at public universities in South Kalimantan. Data analysis techniques using interactive data models. The results showed that the level of understanding of PAI lecturers in South Kalimantan was not very high due to a lack of understanding of the latest digital literacy, there were concerns that the use of AI would conflict with Islamic values and the lack of maximum internet infrastructure in South Kalimantan. This study also shows that AI has great potential in improving the quality of learning. These findings provide important implications for the development of innovative PAI learning models that are relevant to technological developments. This research aims to provide recommendations for PAI curriculum development that integrates AI technology. By identifying the opportunities, challenges and ethics of AI implementation, this research is expected to contribute to designing more effective and engaging learning strategies for students without violating academic integrity and supporting efforts to improve the quality of higher education in Indonesia.

Keywords: *Artificial Intelligence, Compulsory General Islamic Education Courses, Opportunities and Challenges, Lecturers, Learning*

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INTRODUCTION

The development of information and communication technology (ICT) has brought significant changes in various aspects of human life, one of which is in the world of education. A technological innovation that is growing and has great potential to be adopted in the education sector is Artificial Intelligence (AI). AI refers to computer systems that are able to mimic human cognitive functions such as learning, thinking and solving problems (Hermanto, et al, 2024) Artificial Intelligence in Indonesian is artificial intelligence which means a branch of computer science that has the aim of developing systems and machines to facilitate human tasks to meet their needs (Gunawan, 2021).

The development of AI in education has brought significant changes in the way learning and teaching are done. AI technology makes it possible to personalize learning for the better, where the system can adjust the material and learning pace according to students' individual needs. Intelligent tutoring systems can provide real-time feedback and customized guidance, while AI-based chatbots can answer student questions (Mahapatra & Singh, 2021). The low quality of education in Indonesia is due to problems of teaching effectiveness, efficiency and standardization (Sholeh et al., 2023). The lack of creativity of educators in guiding students, an outdated curriculum that is only based on knowledge from the government without considering the needs of the community (Khoerun & Ripin, 2023).

Some definitions of Islamic Religious Education put forward by experts include according to Ramayulis (2003), that Islamic Religious Education is a conscious and planned effort in preparing students to recognize, understand, appreciate, believe, piety, noble character, practice Islamic teachings from the main source of the holy book al-Qur'an and hadith through guidance activities, teaching practice, and the use of experience. Meanwhile, according to Muhaimin (2003), Islamic Religious Education is an effort to educate Islam or Islamic teachings and values so that it becomes a *way of life* (outlook and attitude to life) of a person. Lecturer of Compulsory General Islamic Education Course is a lecturer in charge of teaching Islamic Education courses in public universities.

Islamic Religious Education (PAI) in higher education has a very urgent role in designing the character and morals of students (Sholeh et al., 2024). In the context of globalization and rapid technological development, PAI not only functions as a means to understand religious teachings, but also as a tool to build and develop integrity and ethics in social life. According to Bakhtiar (2013), religious education in higher education must be able to answer the challenges of the times, including the challenges faced by students in dealing with various social and moral issues. Thus, teaching PAI must be relevant and contextual, able to link religious teachings with the reality of everyday life.

Artificial Intelligence (AI) is growing very fast. The use of artificial intelligence systems in various sectors of life has stolen the spotlight from time to time since its emergence. The popularity of AI is expected to continue to increase, as reported by the Work Trend Index 2023 report launched by Mircosoft, 75% of respondents stated that they would apply AI in carrying out their daily tasks and jobs. Indonesia is the 8th Asia Pacific country with the most predicted AI users in 2023 (Yonatan, 2023). Artificial Intelligence (AI) has transformed various sectors, including the education sector (Devi & Rroy, 2023).

Artificial Intelligence (AI) has made strong contributions in the field of education and learning (Chen, Chen, & Lin, 2020). AI's role in learning is demonstrated by adaptive learning platforms, virtual learning environments, content recommendations aligned with learners' interests and goals, AI-powered learning apps offer personalized learning experiences and adaptive content, making learning more accessible and enjoyable for

users of all ages. The application of AI in learning environments has led to various innovations and opportunities to enhance the educational experience (Alam, 2021).

The application of AI in learning is a continuous process and

presents both opportunities and challenges (Masrichah, 2023). The potential in the use of AI is very significant in the academic realm, AI can facilitate the work of lecturers and students in writing or doing assignments quickly and effectively. However, although AI has the potential to revolutionize education by making it more personalized, efficient, and inclusive, providing opportunities and offering new horizons in the world of education, on the other hand, AI also has challenges and concerns and requires careful consideration of various matters (Hadian, Pkim, & Rahmi, 2023), one of which is ethical issues. Ethical issues and academic integrity in the field of education are absolute things that must be upheld by every academic and learner.

As an academic community that is bound by ethics and norms, it should obey and uphold academic integrity (Khalilurrahman, 2016). Academic integrity is the moral principles applied in the academic environment, especially those related to truth, justice, honesty. The values upheld in academic integrity include six aspects, namely: honesty, trust, fairness, respect, responsibility, and humble (Hafizha, 2021).

Lecturers and institutions need to integrate AI wisely in the curriculum to maximize its benefits without compromising learning quality and academic honesty (Sholeh et al., 2024). Lecturers and students need to be equipped with knowledge about the ethical use of AI in the context of writing assignments and examinations. AI in education can be a valuable resource that can help both lecturers and students in their learning process (Setiawan, 2024). However, there needs to be special attention to ensure that the use of AI does not replace the deep understanding, creativity, and critical thinking that both lecturers and students should have (Nuralilah Ali, et al: 2023).

The ethical implications that arise as a result of the rapid development and use of AI cannot be ignored. One of the ethical implications that needs to be watched out for and avoided when using AI is *academic misconduct. Academic misconduct* is dishonest behavior that results in violations of academic standards (Mawarti et al., 2021). *Academic misconduct* is a serious problem in the academic environment. Examples of academic misconduct include plagiarism, cheating, collusion, falsification, and making up/changing data findings or fabrication, ghosting or asking other people to do assignments.

Violations of academic integrity and research ethics are very serious problems in the world of education (Maisyaroh, 2024). The continued rapid development of Artificial Intelligence (AI) is often not matched by an adequate understanding of how AI is used (Suprayitno & Wahyudi, 2020). Therefore, it is imperative for academics and students to have in-depth knowledge about the use of AI, recognize its potential benefits, as well as understand the threats and ethical risks that may arise in an academic context. In an academic environment, every individual, be it a lecturer, researcher, or student, is obliged to adhere to the norms of academic ethics. This includes integrity in research, assignment writing, and academic behavior in general. The success of academia depends on honesty, fairness, and adherence to established ethical principles. The ethical challenges arising in the use of AI in the academic environment is something that must be taken seriously (Aziz, 2018). Awareness of these ethical issues, along with appropriate measures to address the risks, is an important step in maintaining the integrity of education and research.

The rapid development of artificial intelligence (AI) technology has brought significant transformation in various sectors, including education. The integration of AI in the learning process

offers great potential to improve the efficiency, effectiveness and quality of education. In the context of Islamic Religious Education (PAI) in higher education, the opportunities, challenges and ethics in the application of AI have very interesting implications for further research.

METHODS

This research is a qualitative research with a type of case study. Case studies are chosen as a qualitative method because they are considered capable of describing problems in depth (Yusanto, 2020). This study aims to find PAI lecturers' perspectives on the opportunities and challenges of implementing AI in PAI learning, as well as the possibility of including AI components in the PAI learning curriculum.

The sample in this study consisted of 16 PAI lecturers working in 8 universities in South Kalimantan Province. The respondents consisted of 9 women and 7 men, with varying lengths of service. To evaluate PAI lecturers' perspectives on the opportunities and challenges of using AI, this study used semi-structured interviews. A list of questions was developed based on information available in the literature. As an ethical measure, the lecturers were informed that the interviews would be voice recorded and then stored by the researcher. The recordings were then transcribed and analyzed. The interviews had an average duration of 10 minutes, with questions covering the PAI lecturers' opinions on the benefits and challenges of using AI, the suitability of the curriculum, and the ethics of implementing AI in the PAI learning curriculum.

The data collection instruments in this study were interview guidelines and observation guidelines. The interview guideline consists of a number of questions prepared by the researcher to be asked to informants. The question aims to explore and explain the informant's point of view regarding the application of AI for PAI lecturers in universities in the South Kalimantan region. Data analysis techniques in qualitative research are conducted during and after data collection. According to Emzir (2010), data analysis uses the interactive model of Miles and Huberman, which includes several stages. First, researchers collect data obtained from the field, which will then be used as report material. Through data collection techniques, researchers attempted to obtain complete data. Next, data condensation was conducted, which is a process of selecting, simplifying, and transforming data. Qualitative data is transformed by selecting, summarizing, and describing using one's own words.

Data presentation is done by processing data that has been condensed to make it more systematic and organized, making it easier to understand the results of the research. Data presentation aims to clarify the results of the previous data condensation. In the end, conclusion drawing is carried out, which is a stage to understand the meaning, regularity, patterns, explanations, causal flow, or propositions contained in the data obtained.

The results of the interview transcriptions were analyzed using descriptive analysis and content analysis. Content analysis was conducted by creating categories related to PAI lecturers' perspectives on the benefits and challenges of using AI in PAI learning. Direct questions were asked to test the reliability of the data obtained.

RESULTS AND DISCUSSION

The research data was used to explore the level of PAI lecturers' understanding of AI, experience and quality of current PAI learning, opportunities for AI implementation, challenges of AI implementation, and ethics of AI implementation in PAI learning in higher education. The evaluation was obtained by observation, interview and documentation. After the data were collected, data analysis was conducted. The topics used as data collection materials to see the lecturers'

level of understanding of the benefits and challenges of implementing AI in PAI learning in higher education are divided into, (1) The level of understanding of PAI lecturers with the term "artificial intelligence"; (2) How AI can help improve the effectiveness of PAI learning; (3) What are the technical obstacles that may arise in implementing AI in PAI learning; (4) How to ensure that the use of AI in PAI learning does not conflict with religious values; (5) The most effective strategy for implementing AI in PAI learning in higher education in accordance with academic ethics.

PAI lecturers' understanding of the term "*Artificial Intelligence*"

Islamic Education lecturers' understanding of the term "Artificial Intelligence" (AI) is still limited among Islamic Religious Education (PAI) lecturers in South Kalimantan. Although the term "AI" may be well known, an in-depth understanding of the concept and its application in the context of Islamic education is not widely held by lecturers. This limitation could be due to various factors, such as a lack of technological literacy, limited access to relevant training, or a primary focus on teaching that is still more oriented towards conventional methods. In addition, many lecturers do not clearly understand how this technology can be applied to improve the quality of Islamic Religious Education learning, especially in the context of technology-based teaching (Prensky, 2019; Suryanti & Muhammad, 2020).

Despite limited understanding, some PAI lecturers in South Kalimantan have started to explore the use of AI technology in learning, although the implementation is still limited. Only a small number of lecturers have integrated AI into their teaching methods, such as the use of AI-based applications to facilitate Arabic language learning or learning data analysis. This suggests that although there is awareness of the potential of AI, its application in PAI learning in this area is still in its infancy and requires more technical support and training (Yusuf & Ahmad, 2018).

Based on the research, it appears that PAI lecturers' understanding of artificial intelligence still needs to be improved. One step that can be taken to overcome this limitation is to organize more intensive training and socialization programs on AI technology. Such training will not only introduce lecturers to the basic concepts of AI, but also provide a practical understanding of how this technology can be implemented in teaching. In addition, the training could also include the introduction of AI-based tools that can support a more interactive and personalized learning process (Slamet, 2021).

Nonetheless, there is a positive side that can be seen, namely the enthusiasm of Islamic Education lecturers towards the potential of AI in improving the quality of learning is quite high. This shows that although their understanding of AI is limited, they are still interested and want to know more about how this technology can be applied in Islamic education. This enthusiasm is an important asset that can be utilized to encourage further development of the application of AI in the world of Islamic education (Andriani, 2022).

There is a great opportunity to develop AI-based solutions in PAI learning. Given the enthusiasm and willingness of lecturers to apply this technology, there is potential to create AI-based learning applications that can provide a more personalized, adaptive, and engaging learning experience for students. Applications such as AI-based chatbots to assist in the understanding of religious materials or the use of AI-based recommendation systems to provide learning materials that suit individual needs can be a significant first step. Therefore, proper support, both in terms of training and technical facilities, will be crucial in maximizing the potential of AI for PAI learning in South Kalimantan (Prensky, 2019; Yusuf & Ahmad, 2018).

AI in helping to improve the effectiveness of PAI learning

The application of artificial intelligence (AI) in Islamic Religious Education (PAI) learning has a significant impact in improving the effectiveness of the learning process. Several PAI lecturers who have implemented AI in their teaching reported clear benefits, especially in making learning more interesting and fun. One example of an effective application of AI is the use of virtual simulations and AI-based educational games. These virtual simulations allow students to experience situations relevant to PAI materials firsthand, while AI-based educational games provide a more interactive and fun way of learning. This approach can increase students' interest in PAI subjects, which have often been considered monotonous and uninteresting (Zainuddin & Perera, 2020; Syamsudin, 2021).

In addition, the use of augmented reality (AR) supported by AI technology can provide more interactive and engaging visualizations, especially when teaching abstract concepts in PAI. For example, in learning tafsir or Islamic history, AR can be used to display more in-depth visual representations of historical places or the context of religious texts. This helps students to grasp the material more concretely, thus strengthening their understanding of the topic (Hassan & Karim, 2020).

In addition, AI also enables automation in various aspects of learning, such as grading assignments and exams. With the help of AI, lecturers can provide faster and more specific feedback to students. The automated grading process not only speeds up grading, but also allows students to receive more personalized feedback on their work, which supports their academic development in a more effective way (Rahman & Hidayat, 2021).

AI also has an important role in developing more diverse and accessible learning content. For example, lecturers can use AI to produce learning videos, infographics, and animations that support students' understanding of PAI materials. Thus, AI allows the presentation of materials that are more interesting and easy to understand, and can be accessed anytime and anywhere through AI-based online learning platforms. The great advantage of implementing AI is 24/7 access to learning materials, allowing students to learn independently and flexibly (Kurniawan, 2020).

Furthermore, the application of AI in PAI learning can help develop students' critical thinking skills and creativity. This technology-based learning provides space for students to explore new ideas, analyze problems more deeply, and create creative solutions to the challenges faced. This is important in shaping the character of students who not only master PAI material but can also think critically and reflectively (Syamsudin, 2021).

In addition to the benefits in terms of teaching and learning, the application of AI can also improve time efficiency. Administrative processes that are often time-consuming, such as checking assignments or grading exams, can be automated using AI systems, giving lecturers more time to interact directly with students. This also gives lecturers the opportunity to give more attention to students who need extra guidance, which in turn can improve the overall quality of learning (Rahman & Hidayat, 2021).

With the various benefits that can be obtained from the application of AI, PAI learning becomes more focused, efficient, and interesting. Students will be more enthusiastic about learning using technology, while lecturers will also find it easier to carry out teaching tasks. Therefore, the implementation of AI in PAI learning not only improves the quality of learning but also prepares students to face the challenges of an increasingly digital and technology-based era (Zainuddin & Perera, 2020).

Technical constraints that arise in implementing AI in PAI learning

The application of artificial intelligence (AI) in Islamic Religious Education (PAI) learning in South Kalimantan faces several technical obstacles that need to be considered so that the implementation of AI can run optimally. One of the main obstacles is the lack of experience and habit of PAI lecturers in using AI technology. Most PAI lecturers in South Kalimantan are not familiar with AI-based systems, so they need extra time and effort to adapt to the use of this technology in learning. Adaptation to AI involves not only a basic understanding of its concepts and functions, but also requires technical skills to operate AI-based tools or platforms used in learning. Therefore, it is important to provide continuous training and capacity building of human resources (HR) so that lecturers can effectively utilize this technology in teaching PAI (Alfiah & Sunaryo, 2020).

In addition, another significant technical obstacle is the limited access to stable and high-speed internet in many areas of South Kalimantan. This limited internet access is a major obstacle in the implementation of AI-based technology that relies on a good internet connection. Without a stable internet connection, students and lecturers will find it difficult to access AI-based learning materials, such as learning videos, virtual simulations, or other interactive platforms. In addition, learning evaluation using AI technology, such as automatic exam data processing or AI-based assessment, will also be hampered if the internet connection does not support it. This internet limitation has the potential to reduce the quality of learning and reduce the benefits of implementing AI technology (Pratama, 2021; Arief & Sari, 2020).

To overcome these obstacles, collaborative efforts between the government, educational institutions and internet service providers are needed to improve technology infrastructure in remote areas. Improving the quality and coverage of a stable and fast internet will greatly support the technology-based learning process. In addition, intensive training for PAI lecturers and the development of learning materials that can be accessed offline can also be a temporary solution to overcome limited internet access in hard-to-reach areas (Alfiah & Sunaryo, 2020; Arief & Sari, 2020).

Use of AI in PAI Learning

The use of artificial intelligence (AI) in learning Islamic Religious Education (PAI) promises various benefits, but on the other hand, many PAI lecturers have expressed concerns regarding potential value conflicts that may arise due to the application of this technology. Some of these concerns relate to the integrity of religious values, the role of lecturers, students' social interactions, and the practice of academic honesty.

First, a major concern regarding AI in PAI learning is the potential for content generated by AI systems to be incompatible with religious values. For example, algorithms used in AI may be trained with data that is biased, inaccurate, or even irrelevant to the actual religious context. AI, which relies on existing data, may produce information that is flawed or contradictory to Islamic religious teachings if the data used is not closely guarded. This can certainly mislead students in understanding religious teachings and have a negative impact on the quality of religious education provided (Hermawan & Wibowo, 2022; Andriani, 2021).

The second significant concern is the fear that AI could replace the role of lecturers in providing spiritual and moral guidance. In the context of PAI, lecturers not only teach academic material, but also play an important role in guiding students in their spiritual and moral development. AI, although sophisticated in providing learning materials, cannot fully replace the human role in providing personalized and in-depth guidance. Lecturers as authority figures and mentors have the ability to provide moral judgment, personal advice, and life experiences that cannot

be replicated by AI-based systems (Sari & Wulandari, 2023).

In addition, excessive use of AI in PAI learning can reduce social interaction between students and lecturers, which in turn can affect the development of social and community values, especially in the aspect of human relations with others, or in Islamic terms known as *habluminannas*. Learning that relies too much on technology can cause students to feel socially isolated and reduce their opportunities to engage in discussion, collaboration or direct interaction with lecturers and classmates. This can have an impact on the lack of social skills development which is very important in social life (Nugroho & Pratiwi, 2021).

Another concern is related to the potential misuse of AI in education, especially in maintaining the values of academic honesty. The unsupervised use of AI technology can lead to the practice of academic crimes, such as plagiarism and data falsification. With AI's ability to automatically generate text or suggest answers, students may be tempted to use the system in dishonest ways, such as copying others' work or manipulating research data. Therefore, PAI lecturers need to ensure that the application of AI in learning still maintains the principles of academic ethics and the values of honesty in education (Budiarso & Yuliana, 2022).

To address these concerns, it is important for educational institutions to develop clear policies regarding the use of AI, as well as provide training to lecturers and students on how to use this technology ethically and in accordance with religious values. In addition, the use of AI in PAI learning should be balanced with approaches that strengthen social interaction, moral guidance, and strict supervision of potential misuse. Thus, AI can be a tool that supports PAI learning without compromising the deep and important religious values in the educational process (Hermawan & Wibowo, 2022; Sari & Wulandari, 2023).

Effective strategies for AI implementation

The implementation of artificial intelligence (AI) in Islamic Religious Education (PAI) learning in higher education in South Kalimantan requires well-planned strategies to ensure that this technology not only improves the quality of education, but also still accommodates the religious values that are the basis of learning. Here are some strategies that can be applied in implementing AI in the context of Islamic Education in higher education.

Integrating AI in the PAI curriculum needs to be done gradually so that lecturers and students can adapt to this technology without disrupting the learning process that is oriented towards moral and ethical values. Research by Kuswandi et al. (2020) shows that educators who integrate technology carefully can increase students' interest in learning without sacrificing the substance of learning. AI can be used as a tool to enrich teaching materials through interactive videos, simulations, or game-based learning platforms that convey material in a more interesting and in-depth manner (Widodo, 2021).

One of the major challenges in implementing AI is the lack of lecturer skills in utilizing this technology. Therefore, capacity building of lecturers is needed, both through formal and informal training. Lecturers need to be given a basic understanding of AI as well as practical skills in using it to support learning. This training should include the use of AI in creating interactive teaching materials and automated assessment to improve learning effectiveness (Astuti & Suryadi, 2022).

Universities in South Kalimantan already have some technological infrastructure that can be utilized to support AI implementation, such as internet networks and computer laboratories. According to Zainuddin and Haryanto (2022), utilizing this infrastructure will allow students to access AI-based learning materials more easily and flexibly. In addition, an AI-based online learning platform that can be accessed at any time

will increase student engagement and accelerate the learning process.

Lecturers can utilize AI to develop more interactive and interesting learning materials, such as animation-based educational videos or simulation applications that allow students to practice concepts in PAI more effectively. The use of AI technology in educational games can also increase student motivation and engagement, especially in materials that are difficult to understand (Fatmawati, 2023). However, the development of this material must still focus on strengthening the religious values that are the basis of the PAI curriculum.

While AI has many benefits, it is important to have clear management of its use. AI should not replace deep understanding, creativity, and social interaction between lecturers and students. The use of AI in learning should still support the larger goal of education, which is the development of students' moral, ethical, and spiritual values (Rahmadani, 2021). Therefore, universities need to establish policies that ensure that AI is used to enrich the learning experience, without diminishing the importance of human interaction in religious education.

With the implementation of these strategies, it is expected that AI technology can be used effectively to improve the quality of PAI learning in higher education in South Kalimantan, while maintaining a balance between technological innovation and the religious values underlying the education.

CONCLUSIONS

From the results of this study, it can be concluded that MKWU PAI lecturers in South Kalimantan still have a limited understanding of artificial intelligence. Nevertheless, some lecturers who have used AI in learning find it very helpful in saving time and energy in making teaching materials, making learning more interactive and interesting, so that student enthusiasm increases. There are some technical obstacles in the utilization of AI in South Kalimantan, such as the number of internet blank spots, so that internet access is less stable which results in less than maximum accessibility of using AI for learning. The use of AI must also ensure that it does not conflict with religious values, such as maintaining academic honesty by not committing plagiarism, and making AI only as a supporting tool or tool in learning. Scripts produced by AI are only used as the basis for ideas, not just copy and paste and recognized as their own work, selective and the need for content analysis of data generated by AI, whether in accordance with religious values or not. Because algorithm bias can make AI work results inaccurate. In the application of AI, effective strategies are also needed so that lecturers get benefits without falling into academic crime.

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