



Opportunities and Challenges for Islamic Education Teachers in Using Artificial Intelligence in Learning

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Abstract

The phenomenon of using Artificial Intelligence in education has become common. Not only in terms of work, can Artificial Intelligence also be used in the world of Islamic Education. This shows that Artificial Intelligence can also help Islamic Education teachers in learning. This research aims to analysis the challenges and opportunities for Islamic Education teachers in using Artificial Intelligence in learning. The method used in the research is a qualitative method with data sources taken through interviews with forty informants consisting of Islamic Education teachers from elementary to high school level. The results of data analysis found that Artificial Intelligence is proven to provide opportunities and convenience for Islamic Education teachers in the learning process although there are also some challenges. Among the opportunities for Islamic education teachers in using Artificial Intelligence in learning are i) making it easier for teachers to access learning, ii) saving costs, iii) creating interesting and innovative learning media. However, the challenges in using Artificial Intelligence are i) unstable networks, ii) lack of teacher training in the use of artificial intelligence, iii) information obtained is less accurate, iv) lack of teacher privacy. This research can be used as a reading for Islamic religious education teachers in preparing themselves to become creative and professional teachers.

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INTRODUCTION

Artificial Intelligence is the simulation of human intelligence in machines that are programmed to think and act like humans (Awaluddin et al., 2025; Dengen & Budiawan, 2025; Zein, 2023). Artificial intelligence or better known as Artificial Intelligence is a computer program designed and built to be able to imitate human intelligence, including decision-making abilities, logic, and other characteristics of intelligence (Karyadi, 2023). Artificial Intelligence is a multidisciplinary field that aims to automate activities that currently require human intelligence (Hidayat & S, 2024). Humans and Artificial Intelligence can work together to make decisions that are less influenced by personal values (Wahyudi, 2023).

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Artificial Intelligence technology is growing rapidly, especially with the presence of generative Artificial Intelligence such as ChatGPT, Gemini and Copilot (Siswanto et al., 2024). This Artificial Intelligence technology is not only able to process information effectively but also able to generate new relevant and contextual content (Aulia, 2024). The application of this technology in the education sector is increasingly gaining attention, especially regarding how Islamic Education teachers can utilize Artificial Intelligence to design more efficient and effective learning, more efficient implementation, and more accurate evaluation (Tania et al., 2025). Artificial Intelligence has changed the learning paradigm in the digital era and plays an important role in preparing a generation of adaptive and innovative learners (Wahyudi, 2023). Artificial Intelligence also has great potential to be applied in Islamic education (Rubini & Herwinsyah, 2023). Although this technology is generally better known in the fields of technology, business or science, its application in the context of Islamic education is very promising (Suprpto & Sumarni, 2022).

Islamic education is a crucial element in the lives of learners, along with the family environment and society (Rifki et al., 2023). Basically, educational institutions are places where learners are inspired to learn under the guidance and teaching of teachers (Yusuf, 2024). The emergence of Artificial Intelligence technology in the world of education must be responded positively in academia as part of the tools in increasing learning creativity (Kisno et al., 2023). The utilization of Artificial Intelligence in Islamic education is not only limited to planning, but also covers the entire learning cycle, including implementation and evaluation (Warisno & Mujtahidin, 2023). Generative Artificial Intelligence presents various opportunities to enrich the learning process, including personalization of subject matter and automation of administrative tasks, ultimately improving teaching efficiency (Siswanto et al., 2024). However, challenges related to ethics and digital competence remain a significant concern in the adoption of Artificial Intelligence in the classroom (Alam et al., 2024). In addition, (Jannah & Atmojo, 2022) stated that teachers who have used AI-based tools in teaching show mixed results, especially related to the ability of this technology to improve students' critical thinking skills.

As technology advances, the utilization of Artificial Intelligence in the realm of education is becoming more of a concern (Mardikawati et al., 2023). The contemporary digital era has ushered in important transformations in various fields, including the realm of education (Sukmawati, 2024). The application of Artificial Intelligence presents a great opportunity to increase the potential success of the learning process (Alqafi & Azizah, 2024; Cahyanto & Sonjaya, 2024; Jenita et al., 2023).

Artificial Intelligence can be utilized in learning activities by both teachers and students (Fauziyati, 2023). Digital transformation is the main key in opening new opportunities and challenging educators to face an increasingly modern era of education (Kisno et al., 2023; Mansori et al., 2024). Learning methods and focus must begin to be adjusted with the right techniques. Digital transformation has brought great changes to the world of education (Alfi et al., 2023; Latifah & Ngelimun, 2023). Artificial Intelligence offers efficiency in education fostering greater opportunities for personal and community development, as suggested in particular by the United Nations Sustainable Development Goals related to education SDGs point 4 (Qomaruzzaman, 2024). This requires Islamic Religious Education learning to adapt to technological developments and the needs of

learners who are the digital generation (Aldyandra & Sirozi, 2024; Asiah & Harjoni, 2024; Aziz & Zakir, 2022; Dalimunthe, 2023). Based on the author's analysis of Scopus data, research related to the challenges and opportunities of Artificial Intelligence for Islamic Education teachers in learning has not been found, as shown in the following figure.

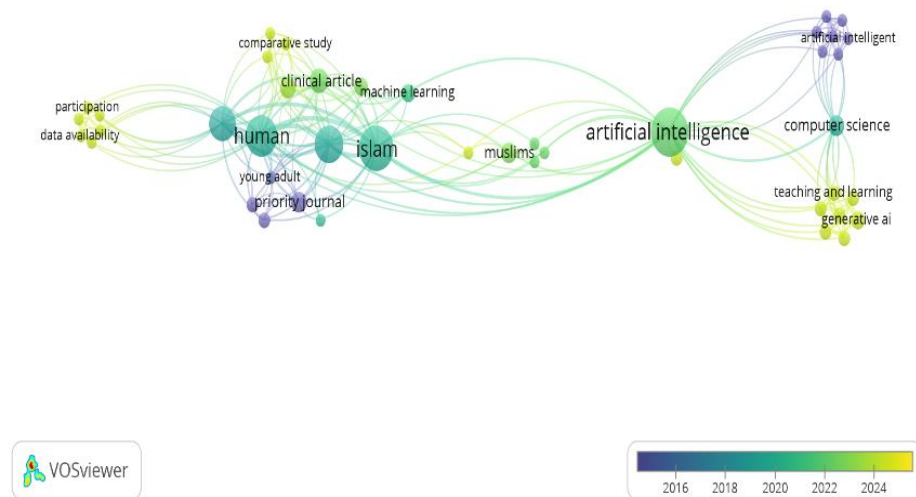


Fig 1. Visualization of keywords on the stage of knowledge and use of Artificial Intelligence of Islamic Education teachers in learning

Based on figure 1 above, which the author analysis on Friday, 17 January 2025 at 16.00 WIB from the published data, the results show that previous research from various countries related to the stage of knowledge and use of Artificial Intelligence of Islamic Education teachers has never been developed. Existing research findings show research on Artificial Intelligence, Islam, Education. While research on the challenges and opportunities of Islamic Education teachers in using Artificial Intelligence in learning has not been mapped completely. Precisely, the author considers research that aims to identify and analysis how the challenges and opportunities of Islamic Education teachers in using Artificial Intelligence in learning need to be raised into a scientific study.

METHODS

This research uses a qualitative method with a multi case study approach. The data sources in this study were obtained through indepth interviews with forty informants using purposive sampling technique. According to Asril et al., (2023); Engkizar et al., (2018, 2023); Iskandar et al., (2023); Putri et al., (2021); Zainal et al., (2022) the selection of informants must meet four criteria, namely that they are still active in the field under study, have competence related to the problem under study, are willing to take the time to provide information to researchers and honestly provide information in accordance with the facts that occur in the field.

After the interview has been taken to all informants, the process of transcribing the interview data is carried out and then taken according to the theme of the theme with the objectives and needs of the research data. According to Sivakumar, (2020) thematic analysis is one of the analysis techniques that can be used by researchers in analyzing interview results so that they can be seen clearly and easily understood by readers.

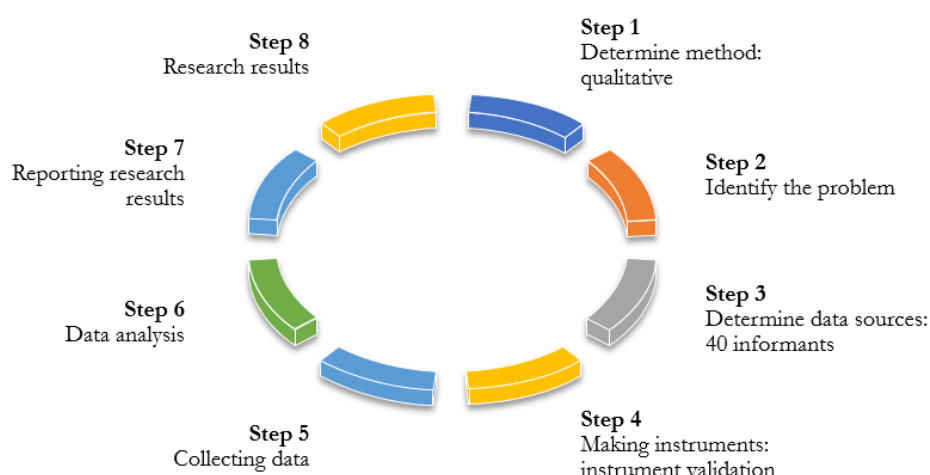


Fig 2. Flow of qualitative research

RESULT AND DISCUSSION

Based on the author's interviews with forty informants, the results of this analysis found seven findings (themes), namely three opportunities for Islamic Education teachers in using Artificial Intelligence in learning i) making it easier for teachers to access learning media or information, ii) saving costs, iii) making creative, innovative and interesting learning media. The author found four challenges of Islamic education teachers in using Artificial Intelligence in learning including i) unstable network, ii) lack of teacher training on the use of Artificial Intelligence, iii) information obtained is less accurate, iv) lack of teacher privacy. To make it easy to understand the ten findings in the research, the author draws the following picture.

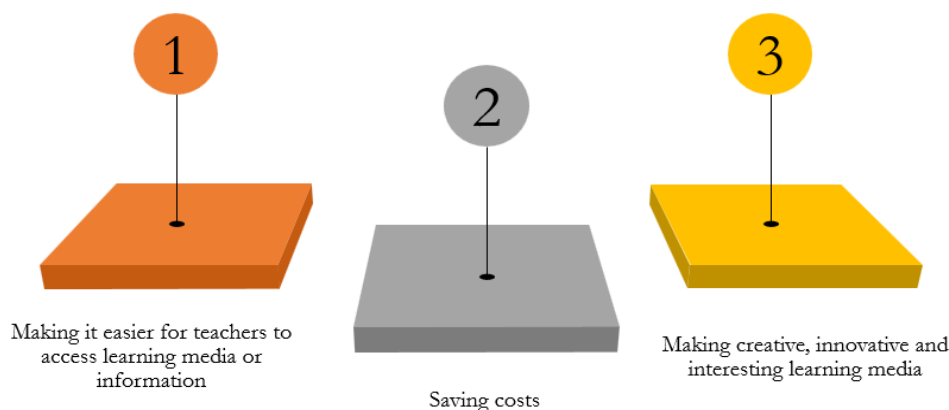


Fig 3. Islamic education teachers' opportunities in using Artificial Intelligence in learning

In order to make the research results and discussion in this article interesting to read and easy to understand, the author will display interview quotes with informants based on the seven themes obtained. In addition, each theme will be discussed based on theories, expert opinions, and previous research results that discuss these issues and problems in different contexts or issues. Here are the opportunities for Islamic education teachers in using Artificial Intelligence in learning.

First, it makes it easier for teachers to access learning information media.

Artificial Intelligence can also make it easier for Islamic Education teachers, especially in learning as quoted below.

...can access comprehensive learning (informants 1, 25, 32, 37 & 38) *...make it easier to provide material and information...* (informants 4, 7, 24, 26, 28 & 36)

In the context of education, Artificial Intelligence can be used to understand, learn, make decisions and adapt based on data and experience. With mastery of Artificial Intelligence, teachers can more easily integrate technology in learning, thus creating a more interactive and adaptive learning experience (Firdaus & Hamdu, 2020).

Second, it saves costs. With internet network access, it is certainly more economical than buying books, so it will reduce expenses as in the following quote.

... very simple, easy to use and saves costs as well as only with quotas (informants 10, 17, 22, 23, 26 & 36)

In the current era of globalization, by utilizing information system technology using computers that are very sophisticated and modern, it will make it easier for us to process data that can save time and money. The results of the information obtained will be more very satisfying, useful, and beneficial for an institution or agency that utilize human artificial intelligence or often called Artificial Intelligence (Rahayu et al., 2023).

Third, creating creative, innovative and interesting learning media. With today's sophisticated technology, it can make it easier for Islamic education teachers to create interesting learning so that they can achieve maximum learning as quoted below.

... making it easier for teachers and students to learn creatively and innovatively in the learning process (informants 6, 14, 19 & 24) *... making learning more interesting* (informants 28, 29, 31, 33 & 34)

Artificial Intelligence systems can be used to analyze individual student profiles, including level of understanding, learning preferences and special needs. Based on this analysis, learning content can be automatically customized to meet the needs of each student, enabling a more effective and engaging learning experience (Alamin, 2023). On the other hand, Artificial Intelligence also provides challenges for Islamic education teachers, following the findings regarding opportunities for Islamic Education teachers. In order to easily understand the ten findings in the study, the author draws through the following figure.

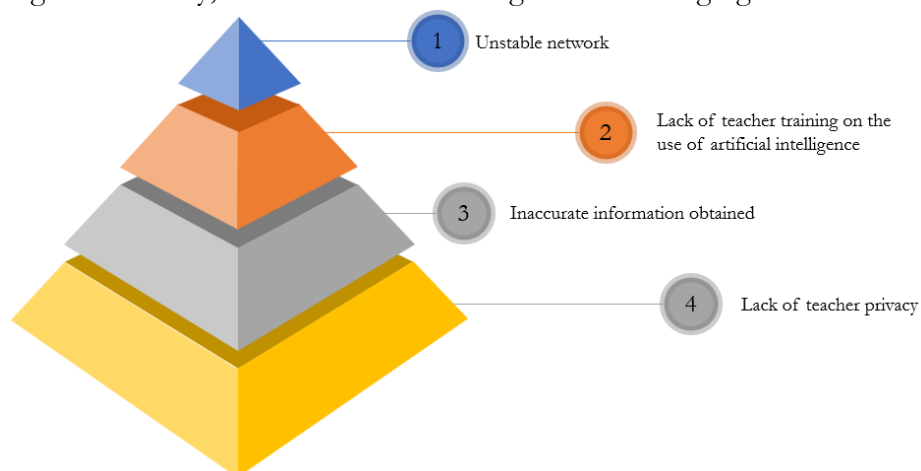


Fig 4. Description of Islamic education teachers' challenges in using Artificial Intelligence in learning

First, the network is unstable. The network is an important component in the use of Artificial Intelligence sometimes in operating Artificial Intelligence there are often obstacles on the network as the following interview excerpt.

...an unstable network makes the process of searching for information slow. So we teachers have to wait for search results for a long time (informants 15 & 20) ... the use of Artificial Intelligence requires a stable connection, but sometimes the network in some places is disrupted due to extreme weather (informants 27, 30 & 35)

The internet is a global network that connects millions of devices around the world. It enables the exchange of information, communication and digital services. Accessing ai requires a stable internet network. Because, if the internet network is bad, then this chatbot will display many bugs and cannot provide the answers you expect (Suharmawan, 2023).

Secondly, the lack of teacher training on the use of Artificial Intelligence. The use of Artificial Intelligence can be accessed anywhere and anytime. However, not all Islamic Education teachers can apply Artificial Intelligence well. This is due to the lack of teacher training on the use of Artificial Intelligence. As the following interview quote.

... the lack of teacher training on the use of Artificial Intelligence makes me less able to apply it perfectly (informant 2) ... the lack of training using Artificial Intelligence is an obstacle for teachers who have an advanced age (informants 8, 9, & 11)

Many Islamic Religious Education teachers still have limited digital skills, so they need intensive training to be able to integrate Artificial Intelligence technology in learning. Some older teachers need more time and intensity of mentoring compared to other teachers who are relatively young. Thus the age factor also greatly affects the learning process of the teachers. The next thing that needs to be done is further training for other types of applications to broaden the teachers' knowledge (Anwar, 2024).

Third, the information obtained is less accurate. The use of Artificial Intelligence in searching for information is often used by Islamic Education teachers but not all search results from Artificial Intelligence are accurate as the following interview quotes.

...sometimes the search results from AI are out of sync and somewhat miss what is being asked (informants 12, 18 & 39) not all learning materials can be found in Artificial Intelligence (informants 16 & 21)

One of the main challenges of Artificial Intelligence is the lack of availability of quality and structured data and unstructured or incomplete data can lead to inaccurate or inconsistent results. Therefore, it is important to have a well-thought-out strategy for data collection and processing to ensure optimal quality in training Artificial Intelligence models (Waromi et al., 2024).

Fourth, teachers' lack of privacy. Artificial Intelligence in collecting and analyzing personal data can threaten the privacy of individuals as the following quotation shows.

...when we want to log in to the application we have to fill in personal data so that there is a lack of privacy (informants 3, 5, 13 & 40)

The use of Artificial Intelligence in the collection and analysis of personal data carries significant risks related to individual privacy. Complex and sophisticated AI algorithms can analyze personal data in great detail, identify patterns and generate valuable insights. However, this also means that there is the potential to reveal sensitive information, such as financial information, health, personal

preferences, or identity data, without the permission or knowledge of the individual concerned (Masrichah, 2023).

CONCLUSION

These findings have answered the questions and objectives to be achieved in the study that the use of Artificial Intelligence for Islamic Education teachers in learning can provide convenience. In this case, teachers are also faced with several challenges in using Artificial Intelligence including unstable internet networks, lack of teacher attention regarding Artificial Intelligence, less accurate information obtained and lack of teacher privacy. However, Artificial Intelligence can also provide benefits for teachers in making it easier to access learning media and information, saving costs and making creative learning media. Based on the findings of this study, the author recommends to future researchers to multiply studies related to this issue so that the literature for Islamic Education teachers can use Artificial Intelligence in learning.

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DECLARATIONS

Author contribution

Najah Baroud: data curation, writing-original draft preparation, **Yoni Ardila:** conceptualization, methodology, **Fauzi Akmal:** visualization, **Rifdah Sabrina:** editing, analysis.

AI Statement

The data and the grammatical structure in this article have been validated and verified by English language experts and no AI-generated sentences are included in this article.

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Conflict of interest

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Ethical clearance

The research company has agreed to carry out the research and is willing if the results of this research are published.

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