

Artificial Intelligence as an Assistant and Generator of Student Learning in Islamic University

Abdurrahman¹, Fathi Hidayah², Dhiauddin³, Zainuddin Fanani⁴

^{1&4} Universitas Al-Qolam Malang, Jawa Tengah, Indonesia.

² Institut Agama Islam Ibrahimy Banyuwangi, Jawa Timur, Indonesia.

³ Institut Agama Islam Al-Muslim Aceh, Aceh, Indonesia.

* Correspondence to: gusdur@alqolam.ac.id

Abstract: This research examines the knowledge and use of Artificial Intelligence in Education (AIEd) by students at three Islamic universities in Indonesia, namely Universitas Al-Qolam Malang (UQM), Institut Agama Islam Ibrahimy Banyuwangi, and Institut Agama Islam Al Muslim Aceh. This survey was conducted at the undergraduate and postgraduate levels. This study used a mixed-methods method with a multi-site case study design. Data were collected online through quantitative surveys and qualitative interviews, using three analytical techniques: pattern matching, explanation building, and logic models. The findings of the research indicate that the level of student knowledge about AIEd is still relatively low. The majority of students are not familiar with AIEd and its benefits in the learning process. Students use AIEd for various academic purposes. As a learning assistant, AI is used to access library materials (books, journals, and kitab kuning), text translation, infer PDF content, and plagiarism detection. As a generative AI, students use AI for citation management, paraphrasing texts, creating paper outlines, and even writing part or all of a paper. Students generally have a positive view of AIEd's prospects in the Islamic PT environment. They believe that AIEd can help improve the quality of learning and support the achievement of their learning goals. This research provides an overview of AIEd's potential to revolutionize the design, processes, and learning assessment systems in Islamic universities. So the recommendation from these findings is the need for socialization, education and training efforts to increase student knowledge about AIEd and how to use it effectively.

Keywords: Artificial intelligence; generative AI; learning assistance.

How To Cite: Abdurrahman, A., Hidayah, F., Dhiauddin, D., & Fanani, Z. (2024). Artificial Intelligence as an Assistant and Generator of Student Learning in Islamic University. *Al-Ta'lim Journal*, 31(3). doi:<https://doi.org/10.15548/jt.v31i3.960>

Article info: Submitted: 02nd Jun 2024 | Revised: 08th September 2024 | Accepted: 31th November 2024

INTRODUCTION

The world of education is now entering an era full of technological disruption. One of the breakthroughs that is currently in the spotlight is artificial intelligence (AI). AI was first proposed by American computer scientist John McCarthy in 1956 (Zhang et al., 2023), which is currently considered to have great potential to fundamentally change the educational landscape (Wang et al., 2023). AI is a simulation of human intelligence by a system or machine so that it has the ability to understand, reason, learn, plan, predict, and so on. The AI development process includes perceptual, cognitive, and decision-making intelligence. Perceptual intelligence means that AI has basic abilities of sight, hearing, touch, etc. that are identical to those of humans (Y. Xu et al., 2021). AI has now become part of human life because AI systems interact with humans and act on the human environment, both directly and indirectly (UNICEF, 2021).

Currently, artificial intelligence in education (AI in Education, AIEd) is developing and changing the design, process, and assessment of learning (W. Xu & Ouyang, 2022). For example, generative AI, since its appearance in 2022, has allegedly increased its use in educational environments from 2023 until now (Jauhiainen & Guerra, 2023). In this context, on the one hand, universities need to reconsider their learning methods and strategies to integrate the use of AI more openly. However, on the other hand, universities need to always be vigilant so that students do not completely depend on AI (Vargas-Murillo et al., 2023). It is more important to see the diversity of students' backgrounds in using AI and the delay in curricular responses from universities regarding the use of AI in learning (Holmes et al., 2023).

The integration of AI into Islamic education is essential, as argued by Asril, Hanafi (2021) and Muslim (2024). While it provides innovative, value-driven ways to handle digital morality, challenges like declining religious literacy and technological reliance must be actively managed through policy and research to ensure Islamic education remains pertinent and effectively shapes character. Heliawati et al. (2022), for example, proved that the moral use of technology can be effective.

Elmahjub (2023) offers the concept of *maslahah* in identifying ethical violations of AI usage. Meanwhile Al-Momani (2025) provides an overview of some of the impacts of AI violations in Islamic education, especially in Islamic legal fatwas. Among the impacts are such as data bias, loss of important cultural aspects, and misinterpretation of texts. Al-Momani suggests the importance of ongoing human supervision by establishing an ethical framework derived from Sharia, ongoing jurisprudential supervision, improving data quality, education and training, and ongoing research and development.

Including misuse of AI-generated content (AIGC), which can be used by students to complete assignments automatically (Gill et al., 2024). Apart from being a supporting tool, AI can also act as a content creator (subjective role) (Zhang et al., 2023). Therefore, according to Williamson et al. (2023), one of the criticisms of AI is the ethical conflict of use. Prather et al. (2023) identified six possible ethical implications of using AI, namely plagiarizing other people's work, collusion (collaboration with other people without approval), appointing other people (contract cheating), using fake data or work (falsification), and using non-authoritative references (unauthorized resources). In terms of plagiarism, essays produced by AI are currently difficult to detect by plagiarism-checking applications (Grassini, 2023). Alexander et al. (2023) identification from a large sample of texts (n = 780) showed that raters' ability to identify AI-generated text decreased from 57.7% with ChatGPT2 to 49.9% with ChatGPT3. Other issues, for example, copyright, transparency, law, risk of bias, lack of originality, inaccurate content with the risk of hallucinations, limited knowledge, misquotation, cyber security issues, and infodemic risk (Sallam, 2023), Compare with Slimi and Carballido (2023).

The diverse response to the use of AI in learning is currently a new pattern in the world of education. Some parties are still antipathetic to the use of AI Chiu (2023), especially if it is used as a source of knowledge, because the validity of the references cannot be guaranteed. The findings Williamson et al. (2023) identified essays that seemed reasonable but actually contained false, misleading, and even dangerous information. These are called hallucinations from generative AI, which students tend to believe and are difficult for lecturers to detect (Alexander et al., 2023). The university's current response is mixed. There are those who are in a hurry to immediately apply AI, even creating guides. However, most still consider the impact on learning (Michel-Villarreal et al., 2023). Not a

few are also defensive, antipathetic, and openly prohibit the use of AI (Eager & Brunton, 2023).

Van den Berg and du Plessis (2023) suggests that universities should not be antipathetic to AI; instead, there should be research and experimental efforts to integrate AI with learning. According to Rahm (2023), the relationship between technical development (including AI) and education is reciprocal. Moreover, there is awareness that AI is an open product that can be accessed by anyone (Dai et al., 2023). For this purpose, Holmes and Tuomi (2022) map the AIED taxonomy, which focuses on students, lecturers, and universities' institutions. These three focuses have their respective positions in the use of AI. In paradoxical language (Lim et al., 2023), AI is both friend and enemy, capable of being relied upon but still dependent on input, accessible but still limited, and actually becoming popular when it is prohibited.

Consequently, educators (lecturers) need to enhance their creativity, innovation, and proficiency in employing media and applications to facilitate the attainment of desired learning outcomes (Nuraini et al., 2023). They should also proactively adapt their thinking by investigating novel ways to integrate AI with educational practices. To equip students, including those in Islamic education, for the challenges of the Fourth Industrial Revolution, Islamic religious educators should leverage three key technologies: IoT in education, virtual/augmented reality, and artificial intelligence (AI) (Zubairi & Nurdin, 2022). Because AI can be applied to resources, environments, methods, management, evaluation, curriculum structures and systems, and even improving educational content (Liu et al., 2021). Eager and Brunton (2023) reminded us that students are actually the determinants of the content that AI will produce, and lecturers still occupy a strategic position in directing students' knowledge sources. Because AI still has to get input from humans in the form of chat or text, which can then be analyzed by AI based on the knowledge base that the AI has (Adiguzel et al., 2023), So the student's position in AIED is in one of three possibilities: directed by AI (AI-directed) only to the extent of accepting, supported by AI (AI-supported) as a collaborator, or empowered by AI (AI-empowered) as a determinant (Adiguzel et al., 2023). It can also be done in stages, where students will develop collaboration with AI through three stages: learning about AI, learning from AI, and learning with AI (Kim et al., 2022).

Chiu (2023), Alotaibi and Alshehri (2023) stated that discussions about AIED occur more often among students at the tertiary level because they are given more freedom to search for scientific truths independently. Currently, according to a Best College survey, 61% of higher education students believe that AI is the future of learning (Dai et al., 2023). Especially the use of generative AI, because concretely, generative AI can: write short texts about certain topics; obtain information about topics of interest; organize specific content; correct the form of the text or change its wording; and even solve problems (Salvagno et al., 2023; Kasneci et al., 2023).

There has been a lot of research related to AIED. Kim et al. (2022), for example, conducted in-depth interviews with 10 leading AIED lecturers in Korea to formulate a design for using AIED. A survey by Chan and Hu (2023) of 399 undergraduate and postgraduate students from various disciplines in Hong Kong showed that only 6% of students always used AI and only 9.8% often. An online survey by Chan (2023) of 457 students, 180 lecturers, and staff in Hong Kong succeeded in formulating the AIED policy framework. Research conducted by Dogan et al. (2023) found 276 publications in China, India, and the United States, one of which shows the increasing use of AIED. Likewise, an analysis by Labadze et

al. (2023) of 67 studies shows the benefits of using AIEd. Memarian and Doleck (2023) analyzed 33 publications from SCOPUS and Web of Science (WoS) related to honesty, accountability, transparency, and ethics in the use of AI. Perkins et al. (2024) researched the ability of academic staff to identify the use of AI-generated content. Only 54.8% of content can be identified as AI-generated.

Meanwhile, AIEd research in Indonesia, especially Islamic education, is still dominated by literature research. For example, a literature study related Wiranto and Suwartini (2019) to the application of AI in Islamic education in various countries, one of which is Indonesia. Compare with the literature studies conducted by Muarif et al. (2023), Sarinda et al. (2023), and Sulaeman et al. (2024). Field research was conducted by Ali et al. (2023) at Palangka Raya University on 173 students in general faculties regarding the use of AI in the studies of Islamic Religious Education (PAI). Even though they come from general faculties, which are often associated with being more familiar with AI, it was found that only 2.9% used AIEd very often and only 7% frequently used AIEd. Finally, the proceeding paper is based on Setiawati et al. (2024) results of interviews with 270 Islamic Religious Education teachers collected at the Subject Teachers' Conference (MGMPPAI) in Banyuwangi.

Of the previous research, there is still very little research on the use of AIEd, and there has been no research in Islamic universities and Islamic faculties. Two surveys conducted by Chan (2023) in Hong Kong and research conducted by Ali et al. (2023) in Indonesia—apart from being carried out in general universities and faculties—still have not explored how students work and the results of AI products that they get from using AI in their learning. Although this author's study will slightly adopt some of the indicators applied in the three previous studies, this study has two significant and important differences. (1) This study more specifically examines AIEd as an assistant and generator of learning in Islamic universities and Islamic faculties only. This is very important to research because the knowledge base of Islamic education tends to be very little embedded in any AI database. (2) This study will also further identify students' views regarding the use of AIEd as an assistant and learning generator in Islamic universities and faculties. In this way, this author's study does not only aim to describe the use of AIEd in Islamic universities and faculties. But more than that, this study will also explore students' views regarding the prospects for using AIEd.

METHOD

This study employs a mixed-methods approach, using a multi-site case study design (Creswell, 2016). The design was implemented in undergraduate and postgraduate Islamic studies programs at three universities in Java and Sumatra, involving a total of 255 respondents (135 undergraduates and 120 postgraduates). Participants were drawn from Universitas Al-Qolam Malang (UQM) (177 students), IAI Ibrahimy Banyuwangi (28 students), and IAI Al-Muslim Aceh (50 students). Data was gathered through random sampling, ensuring equal selection probability for all individuals and allowing for generalization to a larger population.

Closed-ended surveys were used to collect quantitative data, while open-ended interviews were conducted to explore more comprehensive perspectives and elicit detailed explanations from students. Consequently, the respondents were able to provide answers during the interviews, if they had opinions related to AIEd. These instruments, comprising 20 questions (19 quantitative and 1 qualitative), were developed using Google Forms to facilitate online distribution to students at the three universities, and were adapted from an instrument developed by Ali et al. (2023) at Palangka Raya University.

For the purposes of looking for patterns in the data that are consistent with theories or indicators in previous studies and explaining how the use of AI as an assistant and learning generator works as well as the contribution of AI to learning outcomes in the Islamic faculties of the three universities in question, researchers involved three analysis techniques at once: pattern matching, explanation building, and logic models (Yin, 2018).

RESULT AND DISCUSSION

This survey involved 255 students from three Islamic universities in Indonesia. This is because the blind application of AIED occurs more often at the student level in higher education (Alotaibi & Alshehri, 2023). The distribution of respondents based on educational level and university of origin can be described as follows: Postgraduate: 120 people (47.1%) and Undergraduate: 135 people (52.9%). With data as in Figure 1: Al-Qolam University Malang (UQM): 177 people (69.4%), Al-Muslim Aceh Islamic Institute: 50 people (19.6%), and Ibrahiny Banyuwangi Islamic Institute: 28 people (11%)

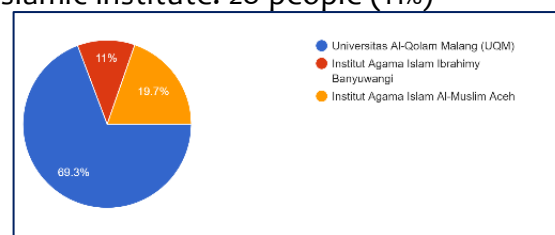


Figure 1. Survey Respondents

Based on the above data, it can be observed that almost half (47.2%) of the respondents were postgraduate students, indicating active participation in advanced academic circles. This shows that this survey reaches a group that has in-depth knowledge and experience in the field of Islamic scholarship, so that it can provide a broader and deeper perspective in the analysis of the survey results. Besides that, the majority of respondents (69.4%) came from Al-Qolam University Malang (UQM). This shows that this survey has a strong data base from a well-known university in Malang. However, it is important to remember that the results of this survey may better reflect the views and experiences of UQM students compared to students from other tertiary institutions. However, on the other hand, even though UQM dominates, the representation from the Al-Muslim Aceh Islamic Institute (19.6%) and the Ibrahiny Banyuwangi Islamic Institute (11%) shows the diversity of university origins. This shows that this survey does not only focus on one university but also considers the views of several Islamic universities in Indonesia.

The implication of the analysis above is that the diverse distribution of respondents based on educational level and university of origin allows the survey results to represent the opinions of Islamic students from various educational backgrounds and institutions. This shows that the results of this survey have the potential to provide a more comprehensive picture of the views and experiences of Islamic students in Indonesia. However, it should be remembered that this survey only involved 255 students and may not represent the entire population of Islamic students in Indonesia.

Understanding and Experience of AIED

A survey involving 255 students showed varying levels of understanding and experience related to AIED in the learning context. The following is a description based on the data obtained according to Figure 2: 15% admitted that they did not know anything about AI, 22.8% had heard of it but did not know its function, and 37.4% admitted that they

had known about it but did not know much about it. AI was available for learning; 20.1% had taught themselves from various AI-related media that could be used for learning; and only 4.7% admitted to having attended special training on using AI for learning.

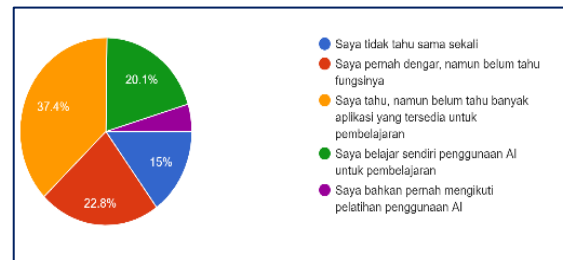


Figure 2. Knowledge about AI

This data shows that there is still a significant knowledge gap regarding AI among students, even though AI has actually become part of student life (UNICEF, 2021). As many as 37.9% (15% + 22.8%) of students did not have basic knowledge about AIED, and 37.4% only had limited knowledge about its application in learning. Although there is a knowledge gap, 20.1% of students showed the initiative to study AI independently. This shows that there is great interest and potential to utilize AI in learning. This data is more encouraging than the findings of Chan dan Hu (2023) in Hong Kong and the findings of Ali et al. (2023) in the General Faculty. However, only 4.7% of students have taken special training on AI for learning. This shows that access to formal training and education related to AI in the learning context is still limited, and there is still an antipathetic response to the use of AI in educational institutions by students (Eager & Brunton, 2023).

AIED as Learning Assistance at PT. Islam

AIED as Assistant for Access to Scientific Books and Journals

The pattern in the use of the AIED application as an AI-based knowledge resource search assistant to search for books and journals, according to the data shown in Figure 3, is that the popular AI application is Google Scholar. The dominance of Google Scholar (61.8%) shows students' trust in this platform to find credible and relevant academic sources. The ease of access and reliability of Google Scholar make it a top choice for students. Meanwhile, 9.1% admitted to using Google Books. There are also students who use Mendeley (6.3%), which indicates the importance of reference management for students. Mendeley's reference management feature helps students organize and cite academic sources easily.

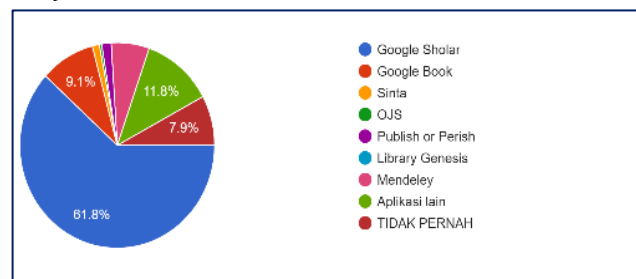


Figure 3. AIED for Books and Journals search

Interestingly, 1.6% admitted to using Publish or Perish (PoP). Although the percentage is small, the use of PoP shows the focus of some students on international journals. PoP helps researchers find journals relevant to their field of study and measure the impact of their research. Other AIED applications used are Sinta (1.2%), which is a

scientific publication data aggregator platform in Indonesia. Then (0.4%) uses Open Journal Systems (OJS) as an open-source platform for managing scientific journals. Then 11.8% used other applications. The remaining students (7.9%) admitted that they had never used AI applications to search for books and journals. This can be caused by several factors, such as a lack of knowledge about AI applications, a preference for traditional sources, or internet access constraints.

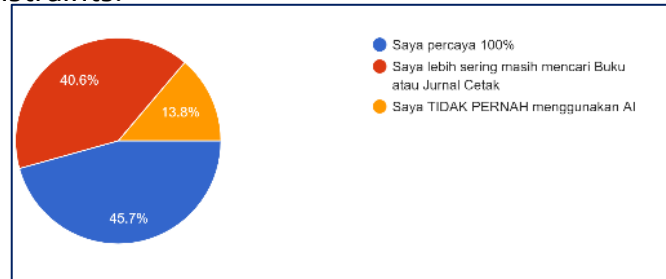


Figure 4. Use of AIED results for access to scientific books and journals

Various responses to the results of using AIED as an assistant for searching scientific books and journals. As many as 45.7% of students believe 100% and use the search results for scientific books and journals with AIED. This shows the great potential of AI in helping students find information and access the scientific books and journals they need more quickly and easily. However, on the other hand, as many as 40.6% of students still use printed versions of scientific books and journals more often than accessing them via AIED. This shows that there is still quite a preference for traditional media, such as books and scientific journals. Meanwhile, the remaining 13.8% of students have never used AIED as an assistant to search for scientific books and journals.

AIED as Assistant for Access to the Kitab Kuning

Access to the Kitab Kuning in the digital era is still relatively diverse. Even though AI has great potential to help in this regard, there are still many students who have not taken advantage of it. According to Figure 5, as many as 33.9% of students use the Google search engine to access the Kitab Kuning. This shows that Google is still the main platform for searching and accessing Kitab Kuning. 18.5% of students use Maktabah Shamela offline, which shows the popularity of Maktabah Shamela as a trusted digital source of the Kitab Kuning. 3.5% of students use the online Maktabah Shamela application (shamela.ws). 3.5% of students use turath.io. 0.8% of students use waqfeya.net. And 8.3% of students use other applications to access the Kitab Kuning. This shows that there are various other digital platforms used to access the Kitab Kuning.

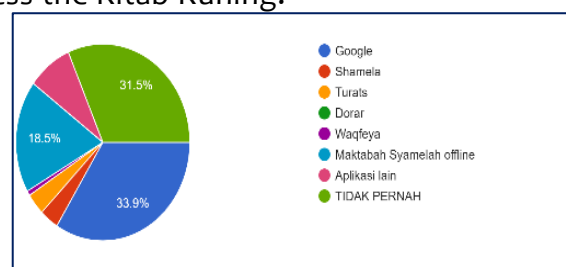


Figure 5. AIED as an assistant for access to the Kitab Kuning

Meanwhile, the remaining 31.5% of students have never used AI to access the Kitab Kuning. This shows that there are still many students who do not know or are not used to using AI to access the Kitab Kuning, which may be due to the limited availability of the Digital Kitab Kuning because not all of the Kitab Kunings are available in digital format yet,

so AI may not be able to help with this, or be due to Access to AI to access the Kitab Kuning still depends on a stable internet connection. This can be an obstacle for students in areas that have limited internet access.

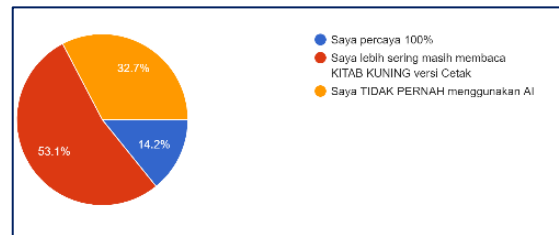


Figure 6. Use of AIED Results for Access to the Kitab Kuning

Preferences for accessing the Kitab Kuning are still divided between print and digital versions, with the help of AI. This, as shown in Figure 6, shows the potential and challenges of utilizing AI to increase the accessibility of the Kitab Kuning. 53.1% of students still use the printed version of the Kitab Kuning more often. This shows an attachment to tradition and a preference for physical learning media. The use of the printed version of the Kitab Kuning may have important cultural and traditional values for students. 32.7% of students admitted that they had never used AI to access the Kitab Kuning. This shows that there are still many doubts about AI's ability to replace the function of the printed version of the Kitab Kuning. And still, 14.2% of students entrust 100% of their access to Kitab Kuning to AI. This shows the potential of AI in improving the efficiency and accessibility of the Kitab Kuning.

AIED as an assistant for text translation

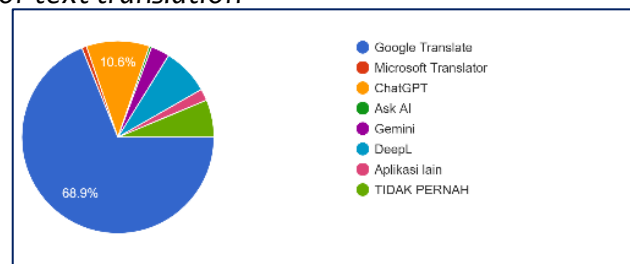


Figure 7. AIED as an Assistant for Text Translation

AI has actually become a popular tool for translating text. Google Translate dominates with 68.9% of users, followed by Chat GPT (10.6%), DeepL Translate (7.9%), Gemini (3.1%), Microsoft Translator (0.8%), Ask AI (0.4%), and other applications (2%). Meanwhile, only 6.3% of students have never used AI to translate text. Google Translate is known for its simplicity and ease of access. This allows users to translate text quickly and easily without needing to register or download an app. Apart from that, Google Translate has high brand awareness and is known by many people throughout the world. This increases the likelihood that users will choose Google Translate when they need translation services.

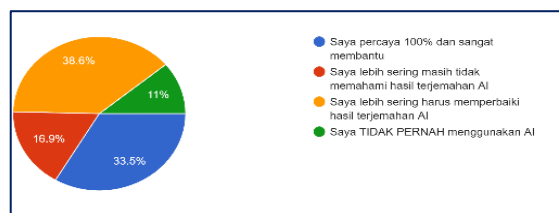


Figure 8. Quality and Use of AI Translation Results

Although AI has become a popular tool for translating text, there are still some challenges associated with the quality of the translation. 38.6% of students still often have

to correct AI translation results. This shows that AI cannot consistently produce translations that are accurate and appropriate to the context of the text. 16.9% of students still often do not understand AI translation results. This shows that AI still cannot fully understand the nuances of language, such as idioms, sarcasm, and humor. Temporary: 33.5% of students trust 100% of AI translation results and use them immediately. This shows that there is quite high confidence in AI's ability to translate text.

AIEd as an assistant to understand PDF Documents

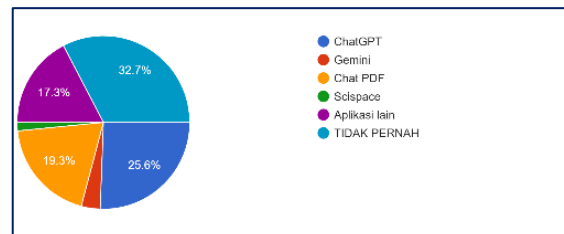


Figure 9. AIEd as an assistant for understanding PDF documents

AI has the potential to help understand PDF documents. However, many students still do not take advantage of it, and there are several challenges that need to be overcome to increase its effectiveness. The data in Figure 9 states that 32.7% of students admitted that they had never used AI to understand PDF files. This shows that there are still many students who are used to reading and understanding PDF documents traditionally, without the help of AI. Meanwhile, another 25.6% of students use Chat GPT to understand PDF files. This shows the popularity of Chat GPT as a tool to help AI understand documents (Jauhiainen & Guerra, 2023). Other alternative choices used by students are Chat PDF (19.3%), Gemini (3.5%), Scispace (1.6%), and other applications (17.3%). This shows that there is a wide choice of AI tools for understanding documents.

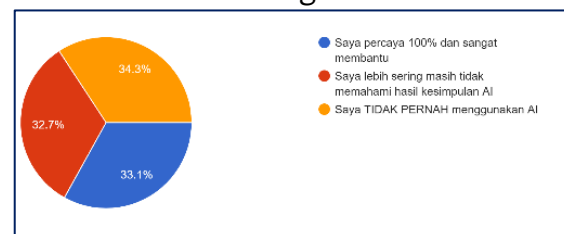


Figure 10. Use of AI inference results on PDF documents

Using AI inference results on PDF document files, 32.7% of students admitted that they still often could not understand the AI inference results on PDF files. This shows that AI is still considered unable to consistently produce conclusions that are accurate and easy to understand. Temporary Another 33.1% of students understand, believe 100%, and use AI inference results. This shows that there is quite high confidence in AI's ability to understand PDF documents.

AIEd as Assistant for Plagiarism detection

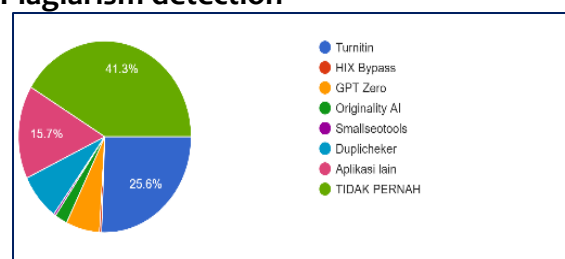


Figure 11. AIEd as an assistant for plagiarism detection

AI also has the potential to help detect plagiarism. However, there are still many students who have not taken advantage of it. According to the data shown in Figure 11, 25.6% of students use Turnitin to detect plagiarism. This shows the popularity of Turnitin as an AI tool for detecting plagiarism, which is widely used in academic circles. Other alternative choices are Duplichecker (7.8%), GPT Zero (6.3%), Originality AI (2.4%), Smallseotools (0.4%), HIX Bypass (0.4%), and other applications (15.7%). This shows that there are various choices of AI tools to detect plagiarism.

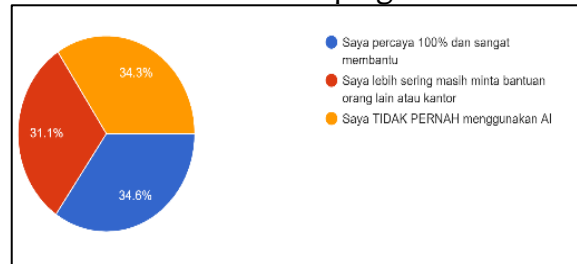


Figure 12. Use of plagiarism detection results with AI

As many as 34.6% of students believe 100% and use the results of plagiarism detection with AI. This shows that there is quite high confidence in AI's ability to detect plagiarism. However, there are still very many students (41.3%) who admit that they have never used AI to detect plagiarism. And quite a lot (31.1%) of students have not carried out independent detection and still often ask other people for help or use facilities from the Academic Office to detect plagiarism.

AIEd as a Learning Generator at Islamic Universities

AIEd as a Generator for Reference and Citation Management

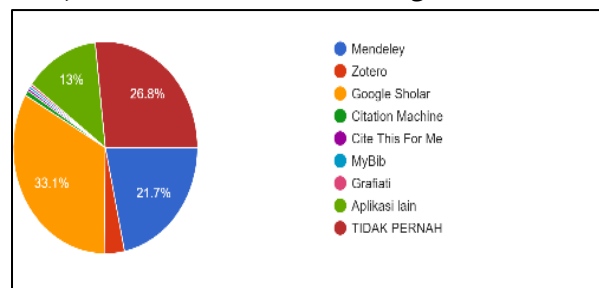


Figure 13. AIEd as a generator for reference and citation management

Surveys show that AI has the potential to help in reference and citation management. AI adoption rate for reference and citation management according to the data in figure 13 it is stated that 26.8% of students admitted that they did not use AI, they created citations manually. This shows that there are still many students who are used to making citations manually, without the help of AI. Meanwhile, another 33.1% of students use Google Scholar for reference and citation management. This shows the popularity of Google Scholar as a reference search platform that is widely used by students. The Mendeley application, which has been widely recommended, is still used by 21.7% of students. And other alternative choices used are Zotero (3.5%), Citation Machine (0.8%), Cite This For Me (0.4%), MyBib (0.4%), Grafati (0.4%), and other applications (13%). This shows that there are various choices of AI tools for managing references and citations.

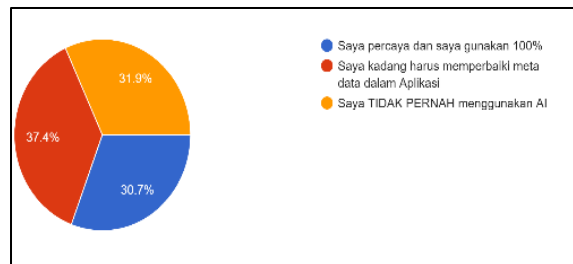


Figure 14. Use of AI reference and citation management results

In terms of the quality of the results and the need for corrections, according to the data in Figure 14, 37.4% of students admitted that they still often have to correct metadata in AI. This shows that AI is still unable to consistently produce accurate and complete metadata. Although as many as 30.7% of students admitted that they directly trusted 100% of AI metadata and used it in citations.

AIEd as a Generator for Paraphrasing Text

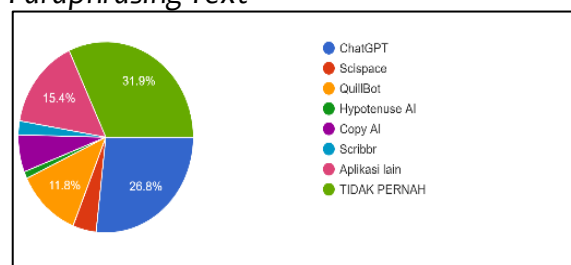


Figure 15. AIEd as a generator for paraphrasing text

AI also has the potential to be a generator to aid in text paraphrasing. However, the data shows that there are still many students who have not taken advantage of it. The level of adoption of AI for text paraphrasing according to the data in Figure 15 shows that 26.8% of students use ChatGPT for text paraphrasing. This shows the popularity of ChatGPT as a generative AI for text paraphrasing, which is widely used by students (Jauhiainen & Guerra, 2023). Other alternative choices are QuillBot (11.8%), CopyAI (6.3%), Scispace (4.3%), Scribbr (2.4%), Hypotenuse AI (1.3%), and other applications (15.4%). This shows that there are various choices of AI tools for paraphrasing text.



Figure 16. Use of AI paraphrasing results

Figure 16 shows that 31.9% of students do not use AI to paraphrase text. This shows that there are still many students who are used to paraphrasing text manually, without the help of AI. In terms of the quality of the AI paraphrasing results, 44.9% of students admitted that they still often had to improve some of the word usage and grammar in the AI paraphrasing results. This shows that AI is still unable to consistently produce accurate and natural paraphrases. Although 23.6% of students immediately believed 100% and used the paraphrased results from AI.

AIEd as a Generator for Creating Paper or Article Outlines

AI also has the potential to become a generator to assist in creating paper outlines or scientific articles. However, there are still many students who have not taken advantage of it. According to the data in Figure 17, it shows that 30.3% of students use Chat GPT to create outlines. This shows the popularity of Chat GPT as a generative AI for creating outlines, which is widely used by students (Jauhiainen & Guerra, 2023). Others use Google's Gemini (7.5%), Gravity Write (1.6%), and other applications (23.6%). 37% of students admitted that they had never used AI to create outlines.

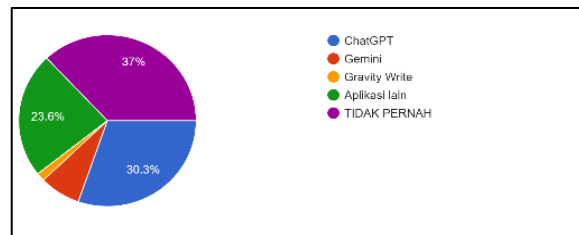


Figure 17. AIEd as a generator for creating outlines

The quality of the AI outline can be seen from Figure 18, and 39.8% of students sometimes still have to improve the content and systematics of the outline produced by the AI. This shows that AI is still unable to consistently produce accurate, logical, and structured outlines. Temporary Another 20.1% of students immediately believed and used 100% of the outline results from AI.

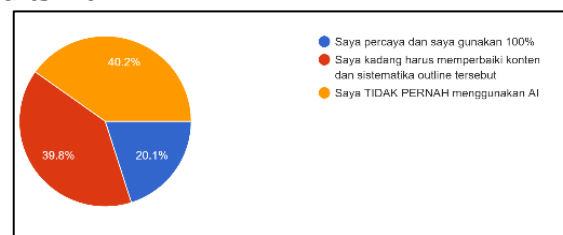


Figure 18. Use of AI Outline Results

AIEd as a generator for writing part or all of an article

AI also has the potential as a generative AI and even as a content creator (subjective role) (Zhang et al., 2023), so it can be a generator to assist in writing parts or all of scientific articles. According to the data in Figure 19, it shows that 32.7% of students use ChatGPT as a generative AI for writing articles (Jauhiainen & Guerra, 2023). Other alternative choices, such as Gemini Google (8.3%), Gravity Write (3.5%), Research Rabbit (0.8%), Elicit (0.8%), Consensus (0.8%), and other applications (20.9%), are also used by students to write articles. This shows that there are various choices of AI tools for writing articles. Another 32.3% of students admitted that they had never used AI to write articles. This shows that there are still many students who are used to writing articles manually, without the help of AI.

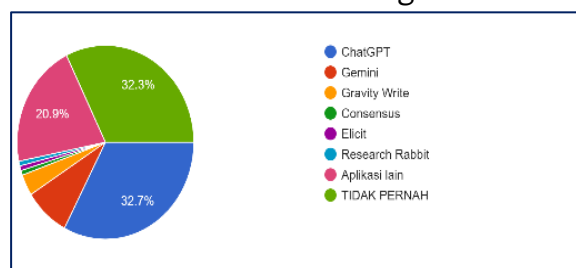


Figure 19. AIEd as a Generator for writing articles

According to the data in Figure 20, 12.6% of students believe and immediately use 100% of the written results of AI products. This shows that students completely create articles using AI products. Most likely, it is used when writing assignment articles that do not really receive corrections from the lecturer, so the lecturer just believes in the results of the student's assignment writing. As are the findings of Alexander et al. (2023) regarding the decreased ability to detect AI product results. Therefore, many suggest that AI policies and education should direct AI to be used as an assistant and learning support. For example, Nikmatullah et al. (2023) and Muslim (2024).

Meanwhile, the majority of students are still wise when using AI writing products. 27.6% of students more often only use a few opening sentences; 9.8% only write the Introduction section; 7.9% only write the Research Methods section; 7.1% only write the Conclusion section; and 6.7% only write the Abstract section. This shows that the majority of students still use AI as a tool to write certain parts of articles and do not fully rely on AI to write the entire article.

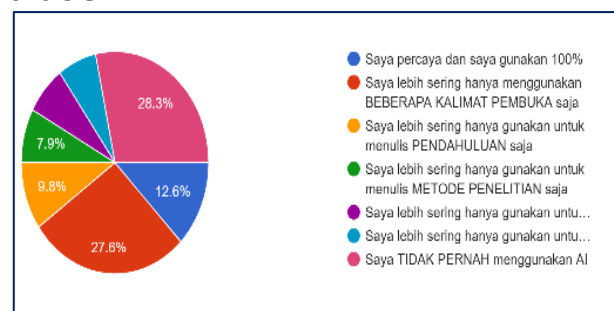


Figure 20. Use of AI Article Writing Products

Students' views regarding AIEd at Islamic Universities

Several students from three Islamic universities showed diverse views regarding the use of AIEd. Many students see AIEd as a tool that can increase the effectiveness of their learning.

Table 1. Results of interviews with several students

Interview result	View
"The use of AI is very helpful in understanding several things that cannot be explained by the teaching staff on campus. Apart from being cheap, AI can be accessed anywhere and at any time, making asking AI more effective than asking lecturers or teaching staff. However, the problem is that the accuracy of data delivery by AI is still less accurate. So there are pluses and minuses to using AI."	AI is considered the main alternative for obtaining knowledge if you find it difficult to access knowledge from lecturers.
"AI enhances our writing skills, even though there are principles that must be implemented by researchers. It can be stated that AI is only a tool that improves and helps the writing task."	AI is considered only as an assistant in learning.
"The use of AI in the campus realm in the current era is a necessity; like it or not, Gen Z is required to adapt to the times, both in the fields of education and work. Therefore, the use of AI at the level of a learning companion or assistant is very possible and, in my opinion, could be recommended as a support and time efficiency in carrying out assignments, as long as it does not lead to academic crime."	AI is considered to have to be mastered as a learning assistant in order to be efficient.
"There is a need for further socialization regarding the use of AI in the context of current developments in the Islamic education dimension."	There needs to be socialization at Islamic universities.
"The use of AI in Islamic education on campus can have both positive and negative influences. Positive influences can help develop skills for students, and lecturers can more easily convey material using methods	Awareness of the positive and negative impacts of AI in

and media from AI development. Negative influences can create dependence on AI assistance and the influence of AI content that is not in accordance with Islamic values. For this reason, it is necessary to be careful when using AI in accordance with the values of Islamic education."	learning at Islamic universities
--	----------------------------------

Table 1 shows that some students still consider AI to be a better source of knowledge than teaching staff. AI’s ability to explain complex concepts, provide complete information, and even produce creative written works impresses them. AI seems to be a teacher who is always ready and able to answer all questions and even write the scientific papers they need. However, more students are realizing that AI is just a tool. This means that student and lecturer guidance is the main determinant in generative AI (Eager & Brunton, 2023). AI can help them understand material more easily, complete assignments more efficiently, and even expand access to reference sources. So according to them, AI still cannot replace the role of teaching staff. Lecturers have an important role in providing guidance, direction, and values that cannot be replaced by AI.

The use of AI in learning also has a negative side that you need to be aware of. Data accuracy that is still imperfect, potential dependence on AI, and the existence of data errors, as well as narrative hallucinations, are some examples of these negative implications (Prather et al., 2023). Therefore, it is important for students to use AI wisely and responsibly. Realizing this, many students hope for increased socialization and even certain policies regarding the use of AI in Islamic universities. This socialization and outreach are important, considering the impact that will occur from the implementation of AIED (Michel-Villarreal et al., 2023).

Socialization about the benefits and risks of AI, education about the responsible use of AI, and clear guidelines about the use of AI in learning are some of the things they want, which is due to the delay in the response of universities to the use of AI (Holmes et al., 2023; Slimi and Carballido, 2023). With proper and responsible application, AI can become a useful tool for improving the quality of learning in Islamic universities. However, it is important to always pay attention to educational values, ethics, and the role of teaching staff in the teaching and learning process (van den Berg & du Plessis, 2023). This is so that there is a reciprocal relationship between AIED development and the educational process (Rahm, 2023). Furthermore, the use of the concept of *maslahah* in the theory of *maqashid sharia* offered by Elmahjub (2023), can help identify violations of the use of AI in Islamic education. As well as the offer of several solutions by Al-Momani (2025) with increased supervision and control of human resources themselves

CONCLUSION

This research reveals the potential of Artificial Intelligence Education (AIED) as transformative in the learning system, including in the field of Islamic education at Islamic universities. Although its adoption rate is still low (around 24.8%), AIED has demonstrated its benefits in various aspects of assistance and academic assignment generation. AIED’s potential as a learning assistant can help students access references, translate texts, summarize texts, and detect plagiarism, thereby simplifying the learning process and increasing time efficiency. More than that, generative AI can help students manage citations, paraphrase texts, create article outlines, and even write part or all of articles, thereby supporting the process of scientific writing and work publication. The students are also optimistic about AIED’s future at Islamic universities. They emphasized the need for a positive response from Islamic universities to develop systems and curricula that are in line

with AIED developments. However, this research still has limitations in comprehensively describing the use of AIED in Islamic universities. More in-depth research using an ethnographic or phenomenological approach is needed to understand the context and dynamics of AIED use in Islamic universities.

REFERENCES

- Adiguzel, T., Kaya, M. H., & Cansu, F. K. (2023). Revolutionizing education with AI: Exploring the transformative potential of ChatGPT. In *Contemporary Educational Technology* (Vol. 15, Issue 3). <https://doi.org/10.30935/cedtech/13152>
- Alexander, K., Savvidou, C., & Alexander, C. (2023). Who Wrote This Essay? Detecting Ai-Generated Writing In Second Language Education In Higher Education. *Teaching English with Technology*, 23(2). <https://doi.org/10.56297/BUKA4060/XHLD5365>
- Ali, N., Hayati, M., Faiza, R., & Khaerah, A. (2023). Artificial Intelligence (AI) dalam Pendidikan Islam: Trends, Persepsi, dan Potensi Pelanggaran Akademik di Kalangan Mahasiswa. *Indonesian Journal of Islamic Religious Education (INJIRE)*, 1(1).
- Al-Momani, I. (2025). Ethical Challenges for using Artificial Intelligence in understanding Islamic Jurisprudence. *Salud, Ciencia y Tecnología - Serie de Conferencias*, 4, 1519. <https://doi.org/10.56294/sctconf20251519>
- Alotaibi, N. S., & Alshehri, A. H. (2023). Prospers and Obstacles in Using Artificial Intelligence in Saudi Arabia Higher Education Institutions—The Potential of AI-Based Learning Outcomes. In *Sustainability (Switzerland)* (Vol. 15, Issue 13). <https://doi.org/10.3390/su151310723>
- Asril, Z., & Hanafi, A. H. (2021). Reconstruction of Islamic Institution Education the 21st Hopes, Challenges, Paradigms, and Roles of Arabic. *Al-Ta Lim Journal*, 28(1). <https://doi.org/10.15548/jt.v28i1.689>
- Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, 20(1). <https://doi.org/10.1186/s41239-023-00408-3>
- Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, 20(1), 43. <https://doi.org/10.1186/s41239-023-00411-8>
- Chiu, T. K. F. (2023). The impact of Generative AI (GenAI) on practices, policies and research direction in education: a case of ChatGPT and Midjourney. *Interactive Learning Environments*. <https://doi.org/10.1080/10494820.2023.2253861>
- Creswell, J. W. (2016). Qualitative Inquiry and Research Design: Choosing Among Five Approaches. In *Design: Choosing Among Five Approaches* (Vol. 3, Issue June). SAGE Publications, Inc.
- Dai, Y., Liu, A., & Lim, C. P. (2023). Reconceptualizing ChatGPT and generative AI as a student-driven innovation in higher education. *Procedia CIRP*, 119. <https://doi.org/10.1016/j.procir.2023.05.002>

- Dogan, M. E., Goru Dogan, T., & Bozkurt, A. (2023). The Use of Artificial Intelligence (AI) in Online Learning and Distance Education Processes: A Systematic Review of Empirical Studies. *Applied Sciences (Switzerland)*, 13(5). <https://doi.org/10.3390/app13053056>
- Eager, B., & Brunton, R. (2023). Prompting Higher Education Towards AI-Augmented Teaching and Learning Practice. *Journal of University Teaching and Learning Practice*, 20(5). <https://doi.org/10.53761/1.20.5.02>
- Elmahjub, E. (2023). Artificial Intelligence (AI) in Islamic Ethics: Towards Pluralist Ethical Benchmarking for AI. *Philosophy and Technology*, 36(4). <https://doi.org/10.1007/s13347-023-00668-x>
- Gill, S. S., Xu, M., Patros, P., Wu, H., Kaur, R., Kaur, K., Fuller, S., Singh, M., Arora, P., Parlikad, A. K., Stankovski, V., Abraham, A., Ghosh, S. K., Lutfiyya, H., Kanhere, S. S., Bahsoon, R., Rana, O., Dustdar, S., Sakellariou, R., ... Buyya, R. (2024). Transformative effects of ChatGPT on modern education: Emerging Era of AI Chatbots. *Internet of Things and Cyber-Physical Systems*, 4. <https://doi.org/10.1016/j.iotcps.2023.06.002>
- Grassini, S. (2023). Shaping the Future of Education: Exploring the Potential and Consequences of AI and ChatGPT in Educational Settings. In *Education Sciences* (Vol. 13, Issue 7). <https://doi.org/10.3390/educsci13070692>
- Heliawati, L., Pebriani, F., & Ardianto, D. (2022). The Effect of Stream-Based Teaching Materials Using Android on Students' Problem-Solving Skills and Religious Attitudes. *Al-Ta Lim Journal*, 29(1). <https://doi.org/10.15548/jt.v29i1.692>
- Holmes, W., Iniesto, F., Anastopoulou, S., & Boticario, J. G. (2023). Stakeholder Perspectives on the Ethics of AI in Distance-Based Higher Education. *International Review of Research in Open and Distance Learning*, 24(2). <https://doi.org/10.19173/irrodl.v24i2.6089>
- Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education*, 57(4). <https://doi.org/10.1111/ejed.12533>
- Jauhainen, J. S., & Guerra, A. G. (2023). Generative AI and ChatGPT in School Children's Education: Evidence from a School Lesson. *Sustainability (Switzerland)*, 15(18). <https://doi.org/10.3390/su151814025>
- Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Kim, J., Lee, H., & Cho, Y. H. (2022). Learning design to support student-AI collaboration: perspectives of leading teachers for AI in education. *Education and Information Technologies*, 27(5). <https://doi.org/10.1007/s10639-021-10831-6>

- Labadze, L., Grigolia, M., & Machaidze, L. (2023). Role of AI chatbots in education: systematic literature review. *International Journal of Educational Technology in Higher Education*, 20(1), 56. <https://doi.org/10.1186/s41239-023-00426-1>
- Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *International Journal of Management Education*, 21(2). <https://doi.org/10.1016/j.ijme.2023.100790>
- Liu, Y., Saleh, S., & Huang, J. (2021). Artificial Intelligence in Promoting Teaching and Learning Transformation in Schools. *International Journal of Innovation, Creativity and Change*. <https://doi.org/10.53333/ijicc2013/15369>
- Memarian, B., & Doleck, T. (2023). Fairness, Accountability, Transparency, and Ethics (FATE) in Artificial Intelligence (AI) and higher education: A systematic review. In *Computers and Education: Artificial Intelligence* (Vol. 5). <https://doi.org/10.1016/j.caeai.2023.100152>
- Michel-Villarreal, R., Vilalta-Perdomo, E., Salinas-Navarro, D. E., Thierry-Aguilera, R., & Gerardou, F. S. (2023). Challenges and Opportunities of Generative AI for Higher Education as Explained by ChatGPT. *Education Sciences*, 13(9). <https://doi.org/10.3390/educsci13090856>
- Muarif, J. A., Jihad, F. A., Alfadli, M. I., & Setiabudi, D. I. (2023). Hubungan Perkembangan Teknologi Ai Terhadap Pembelajaran Mahasiswa. *Jurnal Pendidikan: SEROJA*, 2(2). <https://doi.org/https://doi.org/10.572349/seroja.v1i2.548>
- Muslim, M. (2024). Internalising Digital Technology in Islamic Education. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 6(3). <https://doi.org/10.37680/scaffolding.v6i3.6309>
- Nikmatullah, C., Wahyudin, W., Tarihoran, N., & Fauzi, A. (2023). Digital Pesantren: Revitalization of the Islamic Education System in the Disruptive Era. *Al-Izzah: Jurnal Hasil-Hasil Penelitian*. <https://doi.org/10.31332/ai.voio.5880>
- Nuraini, N., Suhari, S., Awalia, R., Herwani, H., & Ubabuddin, U. (2023). The Creativity of Teachers Using Online Learning Media in Pandemic Covid-19. *Al-Ta Lim Journal*, 30(1). <https://doi.org/10.15548/jt.v30i1.737>
- Perkins, M., Roe, J., Postma, D., McGaughan, J., & Hickerson, D. (2024). Detection of GPT-4 Generated Text in Higher Education: Combining Academic Judgement and Software to Identify Generative AI Tool Misuse. *Journal of Academic Ethics*, 22(1), 89–113. <https://doi.org/10.1007/s10805-023-09492-6>
- Prather, J., Denny, P., Leinonen, J., Becker, B. A., Albluwi, I., Craig, M., Keuning, H., Kiesler, N., Kohn, T., Luxton-Reilly, A., MacNeil, S., Petersen, A., Pettit, R., Reeves, B. N., & Savelka, J. (2023). The Robots Are Here: Navigating the Generative AI Revolution in Computing Education. *Proceedings of the 2023 Working Group Reports on Innovation and Technology in Computer Science Education*, 108–159. <https://doi.org/10.1145/3623762.3633499>

- Rahm, L. (2023). Education, automation and AI: a genealogy of alternative futures. *Learning, Media and Technology*, 48(1). <https://doi.org/10.1080/17439884.2021.1977948>
- Sallam, M. (2023). ChatGPT Utility in Healthcare Education, Research, and Practice: Systematic Review on the Promising Perspectives and Valid Concerns. In *Healthcare (Switzerland)* (Vol. 11, Issue 6). <https://doi.org/10.3390/healthcare11060887>
- Salvagno, M., Taccone, F. S., & Gerli, A. G. (2023). Can artificial intelligence help for scientific writing? *Critical Care*, 27(1), 75. <https://doi.org/10.1186/s13054-023-04380-2>
- Sarinda, F., Martina, M., Noviani, D., & Hilmin Hilmin. (2023). Pendidikan Agama Islam Berbasis Teknologi (AI) Artificial Intelligence. *JURNAL KAJIAN PENELITIAN PENDIDIKAN DAN KEBUDAYAAN*, 1(4). <https://doi.org/https://doi.org/10.59031/jkppk.v1i4.268>
- Setiawati, L., Rofiqah Nasri, F. N., & Amalia, A. R. (2024). Implementasi Chat-Gpt Dalam Pembelajaran Pendidikan Agama Islam. *ICHES: International Conference on Humanity Education and Society*. <https://proceedingsiches.com/index.php/ojs/article/view/193>
- Slimi, Z., & Carballido, B. V. (2023). Navigating the Ethical Challenges of Artificial Intelligence in Higher Education: An Analysis of Seven Global AI Ethics Policies. *TEM Journal*, 12(2). <https://doi.org/10.18421/TEM122-02>
- Sulaeman, S., Anggraini, R., Paramansyah, A., Husnul Fata, T., & Judijanto, L. (2024). Peran Artificial Intelligences Sebagai Alat Bantu Dalam Meningkatkan Keterampilan Menulis Mahasiswa Pendidikan Agama Islam Di Era Disruptif. *INNOVATIVE: Journal Of Social Science Research*, 4(1). <https://doi.org/https://doi.org/10.31004/innovative.v4i1.8456>
- UNICEF. (2021). Policy Guidance on AI for Children. In *United Nations Children's Fund (UNICEF)*. United Nations Children's Fund (UNICEF).
- van den Berg, G., & du Plessis, E. (2023). ChatGPT and Generative AI: Possibilities for Its Contribution to Lesson Planning, Critical Thinking and Openness in Teacher Education. *Education Sciences*, 13(10), 998. <https://doi.org/10.3390/educsci13100998>
- Vargas-Murillo, A. R., de la Asuncion Pari-Bedoya, I. N. M., & de Jesús Guevara-Soto, F. (2023). Challenges and Opportunities of AI-Assisted Learning: A Systematic Literature Review on the Impact of ChatGPT Usage in Higher Education. *International Journal of Learning, Teaching and Educational Research*, 22(7). <https://doi.org/10.26803/ijlter.22.7.7>
- Wang, T., Lund, B. D., Marengo, A., Pagano, A., Mannuru, N. R., Teel, Z. A., & Pange, J. (2023). Exploring the Potential Impact of Artificial Intelligence (AI) on International Students in Higher Education: Generative AI, Chatbots, Analytics, and International Student Success. *Applied Sciences (Switzerland)*, 13(11). <https://doi.org/10.3390/app13116716>
- Williamson, B., Macgilchrist, F., & Potter, J. (2023). Re-examining AI, automation and datafication in education. In *Learning, Media and Technology* (Vol. 48, Issue 1). <https://doi.org/10.1080/17439884.2023.2167830>

- Wiranto, E. B., & Suwartini, S. (2019). Artificial Intelligence and Trustworthy Principles in Global Islamic Education. *Mind, Machine, and Metaphor*.
- Xu, W., & Ouyang, F. (2022). The application of AI technologies in STEM education: a systematic review from 2011 to 2021. In *International Journal of STEM Education* (Vol. 9, Issue 1). <https://doi.org/10.1186/s40594-022-00377-5>
- Xu, Y., Liu, X., Cao, X., Huang, C., Liu, E., Qian, S., Liu, X., Wu, Y., Dong, F., Qiu, C. W., Qiu, J., Hua, K., Su, W., Wu, J., Xu, H., Han, Y., Fu, C., Yin, Z., Liu, M., ... Zhang, J. (2021). Artificial intelligence: A powerful paradigm for scientific research. In *Innovation* (Vol. 2, Issue 4). <https://doi.org/10.1016/j.xinn.2021.100179>
- Yin, R. K. (2018). *Case Study Research and Applications Sixth Edition*.
- Zhang, T., Lu, X., Zhu, X., & Zhang, J. (2023). The contributions of AI in the development of ideological and political perspectives in education. *Heliyon*, 9(3). <https://doi.org/10.1016/j.heliyon.2023.e1340>
- Zubairi, Z., & Nurdin, N. (2022). The Challenges of Islamic Religious Education in the Industrial Revolution 4.0. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 4(3). <https://doi.org/10.37680/scaffolding.v4i3.2120>