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Integration of AI Chatbots in Islamic Religious Education: Potential and Challenges from a Doctoral Student Perspective

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ABSTRACT

This article examines the application of artificial intelligence (AI), particularly chatbot technology such as ChatGPT, in higher education, with a specific focus on Islamic religious learning. The study involved 27 doctoral students from Sunan Ampel State Islamic University, Surabaya, using a survey method to explore their perceptions of ChatGPT in Islamic religious learning. Data was obtained via Google Forms using purposive and convenience sampling techniques. The survey contains 28 questions covering various aspects of ChatGPT's uses, benefits, limitations, and ethical issues. Data analysis using SPSS software, including frequency analysis, mean, and reliability. The results show a high level of reliability and reveal that using ChatGPT can improve productivity, learning quality, and personalization. However, there are limitations such as a lack of context understanding, limited personalization capabilities, and the potential to hinder human-to-human interactions. In addition, students also raised concerns about ethical issues such as plagiarism, assessment fairness, data privacy, dependency, and information bias. This article provides insights into the use of ChatGPT in higher education and emphasises the importance of considering ethical aspects in its implementation. To mitigate the ethical risks that may arise from the use of ChatGPT in educational settings, it is recommended that institutions develop policies, provide education, and ensure the availability of adequate resources. The article also emphasises the need for ethical risk mitigation measures associated with the use of ChatGPT in the educational environment.

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1. INTRODUCTION

Artificial intelligence (AI) technology is revolutionising various sectors, including education, by enhancing the learning experience and providing innovative tools for educators and students. It has become indispensable in modern life, influencing information access, news consumption, entertainment, surveillance, finance, payments, and navigation (Williamson & Eynon, 2020). AI,

stemming from John McCarthy's ideas in 1955, enables machines to simulate intelligent human behavior, leveraging advanced algorithms and vast data (Chiu et al., 2022). Supported by sophisticated algorithms and abundant data, AI has become a branch of computer science that studies intelligence through algorithmic processes (Dwivedi et al., 2021). This multidisciplinary field integrates computer science, statistics, information theory, and mathematics to explore human thought processes through machine analysis (Lu, 2019; Mondal, 2020). AI's revolutionary potential is increasingly evident across sectors like business, healthcare, and education (Alawi, 2023). Crompton & Burke (2024) noted a rapid increase in publications on AI in higher education, with the number of studies nearly two to three times increasing between 2021 and 2022.

The use of artificial intelligence (AI) in higher education has experienced significant growth in recent years (Chu et al., 2022), marked by the emergence of a variety of innovative AI tools that promise significant benefits for teachers and students. Various recent studies, such as those conducted by L. Chen et al. (2020), Dever et al. (2020), Crompton & Burke (2022,2023), and others reveal the various benefits of AI for teachers and students in higher education. These benefits include the use of AI to adapt instruction to the needs of diverse learners (Lu, 2019), providing fast and relevant feedback (Dever et al., 2020), designing assessments and predicting academic success (Farazouli et al., 2023).

Furthermore, research by Holmes & Tuomi (2022) shows that the Intelligent Tutor System (ITS) can improve student learning outcomes through personalized tutoring. Al Ka'bi (2023) found that AI and deep learning algorithms help students understand information quickly and learn in real-time. Astarilla Dede Warman et al. (2023) noted that AI technology can provide significant benefits in improving the speaking abilities of introverted students. Adiguzel et al. (2023) reviews the use of AI such as chatbots and ChatGPT in education, highlighting ethical challenges and the importance of collaboration for responsible use. Wiranto & Suwartini (2022) shows that AI can strengthen the personalization of learning in Islamic education, school management, and student evaluation. These findings certainly provide an important basis for educators to understand and utilize AI optimally in the context of higher education.

One AI technology that is often used in education is the chatbot system (Okonkwo & Ade-Ibijola, 2021). Chatbots are intelligent agents that can interact with users through answers to questions and appropriate responses (Clarizia et al., 2018). As a dialogue system, chatbots must understand conversations and recognize users' social and emotional needs. This technology mimics human communication, enabling interaction with digital devices as if talking to a human (Ciechanowski et al., 2019). Chatbot performance depends on the size and accuracy of the database used; the larger the data, the better the performance (Aleedy et al., 2022). Chatbot creation involves Natural Language Processing (NLP), which allows machines to understand and interpret human language. The first chatbot, Eliza, was developed in 1966, followed by Parry in 1972 and Alice in 1995. With the advancement of technology, modern Chatbots such as SmarterChild, Siri, Alexa, Watson, Cortana and Google Assistant have been created (A. Reis et al., 2018).

Among the chatbot technologies that have become popular recently, ChatGPT has had a broad impact on the education sector. In fact, it is believed that the integration of generative AI will become increasingly significant (Lee & Maeng, 2023). ChatGPT, based on the Generative Pre-trained Transformer (GPT) algorithm, is able to recognize large data patterns and generate human-like responses, including creating relevant images as responses (Rospigliosi, 2023; Digital Health, 2023). ChatGPT can perform a variety of tasks, such as translation, text summarization, and answering complex questions, and has been proven successful in various exams (Choi et al., 2023; Eke, 2023a; Terwiesch, 2023). As the tool continues to evolve, the latest version, ChatGPT-4, has stronger capabilities in processing natural language and responding with details to images or handwriting (ChatGPT, 2024).

Many studies show that ChatGPT is widely used at all levels of education, from primary, secondary, and tertiary levels. On various media platforms, many people discuss productivity, efficiency and ethics of use. Zawacki-Richter et al. (2019) noted that ChatGPT is used in various aspects

of higher education, such as creating profiles, predicting student learning, and providing intelligence guidance. Lecturers also use it to look for ideas, information, and support the teaching process, while still prioritizing criticism and caution (Firaina & Sulisworo, 2023). Students often use ChatGPT to get academic information quickly and easily and improve their communication skills, some of them even ask educational institutions to provide special training for its use (Jishnu et al., 2023; Loan et al., 2023).

Despite concerns regarding plagiarism and cheating, students continue to use ChatGPT for academic purposes, even though writing manually is still considered better in terms of quality and authenticity (Bašić et al., 2023; Sobaih et al., 2024). ChatGPT helps in forming positive habits related to the use of new technology in educational environments, with a user-friendly interface that is easily accessible to students and teachers (Jishnu et al., 2023). In addition, ChatGPT supports teachers in the assessment process, acts as a teaching assistant, and provides support for learning tailored to individual needs (Khan et al., 2023).

However, there are a number of limitations that need to be considered when using ChatGPT. First, ChatGPT is unable to understand context like humans do, which impacts its ability to provide appropriate responses (Adamopoulou & Moussiades, 2020; Cunningham-Nelson et al., 2019; Das & JV, 2024). Second, data limitations after 2021 may limit ChatGPT's ability to provide up-to-date information(Khan et al., 2023). Third, although sophisticated, ChatGPT cannot completely replace human knowledge and skills, so there are still aspects of education that are better handled by humans (Williamson & Eynon, 2020). Fourth, the survey results show users' concerns about the privacy and security of their data, including possible privacy violations and other negative impacts (Okonkwo & Ade-Ibijola, 2021). Fifth, there are concerns that AI chatbots could hinder students' critical thinking and academic integrity, as well as increase dishonest practices such as plagiarism (Dehouche, 2021; Halaweh, 2023; Seo et al., 2021).

Despite the increasing adoption of ChatGPT, there is limited research on its use and ethical implications in Islamic Religious Education. This research aims to investigate how AI chatbots are being used by doctoral students in Islamic Religious Education, examining their benefits, limitations and ethical considerations. The research seeks to understand the extent to which these chatbots are used for academic purposes, identify their perceived benefits and challenges, explore the factors that influence their acceptance, and address the ethical issues associated with their use. The findings are expected to provide valuable insights for developers and educators in designing effective strategies for integrating AI into higher education, thereby enhancing the learning experience for students, while ensuring adherence to ethical standards within the academic community.

2. METHODS

This research uses survey methods to collect data and analyze the attitudes, beliefs, opinions and current practices of the participants (Creswell, 2021). The survey method was chosen because it is effective in capturing current trends, and ChatGPT is currently popular in various sectors of society. This research focuses on students' perceptions of AI chatbots, and the data is analyzed quantitatively to understand usage patterns, acceptance, benefits, limitations, and ethical issues related to their use.

2.1. Participants and Instruments

A total of 27 doctoral students from the class of 2022 and 2023 from the Islamic Religious Education study program at Sunan Ampel State Islamic University, Surabaya participated in this research. Data were collected via Google Forms, using a combination of purposive and convenience sampling methods. By combining these two techniques, researchers can achieve a balance between selecting respondents who are relevant to the research (purposive sampling) and ease of the sampling process (convenience sampling) (Creswell, 2021; Sugiyono, 2022). Participants who use ChatGPT volunteer their responses.

In this research, a survey was used consisting of 40 questionnaire items that highlight each dimension or category of student perceptions regarding the use of ChatGPT. These survey items were developed based on research conducted by Lee & Maeng (2023), with further modifications and refinements inspired by the survey Das & JV (2024), especially in formulating questions related to student perceptions regarding chatbot use (frequency, specific purpose, duration of use) as well as potential problems that may arise from chatbot use. The survey also includes collecting demographic information of respondents (gender, institution, academic program & major).

In detail, the questionnaire in this study explored students' perceptions of using ChatGPT starting from the factors that encourage use, benefits, limitations, and ethical issues faced in using ChatGPT, such as the risk of plagiarism or other ethical considerations. The questionnaire was formatted using a 5-point Likert scale, with a score range from 1 (strongly disagree) to 5 (strongly agree). Table 1 presents the composition of survey items in detail.

Table 1. Composition of survey questions

No	Categories	Items Description	No. of items
1	Background	Gender	01
		Year of study	01
2	Academic use	Duration, frequency, type of activity, dependency, benefits, and skills.	09
3	Benefits and limitations	Benefits of using chatbots	09
		Limitations of using chatbots	09
4	Acceptance factor	convenience, cost efficiency, recommendations to colleagues, confidence in the accuracy of information, and learning experience.	06
5	Ethical issues	Plagiarism, assessment accuracy, danger of dependency	07
	Total		42

2.2. Data Collection Technique

Data collection was conducted between March and May 2024. Researchers have prepared a Likert type scale by referring to several related studies(Das & JV, 2024; Lee & Maeng, 2023; Limo et al., 2023; Shoufan, 2023). From the data presented in Table 1, five main categories can be identified, namely the use of ChatGPT in the academic world, acceptance factors, benefits, limitations and ethical issues, which overall aims to measure the perceptions of doctoral students in Islamic religious education study programs.

Measurements were carried out using Cronbach's Alpha with the help of the Statistical Package for Social Science Research (SPSS) to assess the reliability of the scale. The overall Cronbach's Alpha coefficient value for all categories is 0.891, which indicates a good level of reliability and exceeds the generally accepted threshold, namely 0.7 (Cortina, JM, 1993). Specifically, the Cronbach's Alpha coefficient values for each category are: academic use= 0.744, perceived benefits and limitations= 0.857, acceptance factor= 0.770, and ethical issues= 0.745. All these values show reliable reliability, as they exceed the threshold of 0.7. Table 2 displays the Cronbach's Alpha values for each category as well as the entire scale.

Table 2. Reliability statistics for the ChatGPT perception scale

No	Category	Number of items	Cronbach's (α)
1	Academic use	09	0.744
2	Benefits and limitations	18	0.857
3	Acceptance factor	06	0.770
4	Ethical issues	07	0.745
	Total	40	0.891

2.3. Data Analysis

Before starting the survey, respondents were given a detailed explanation regarding the contents of the questionnaire and the correct procedure for filling it out. This is important to ensure clear understanding and accurate answers from respondents. Clear and informed consent was obtained, and only students who volunteered to take the survey during class time were permitted to participate. The researcher's commitment to ethical considerations is always emphasized.

Data were collected using Microsoft Excel and processed and analyzed using the Statistical Package for the Social Sciences (SPSS) software version 29.0. The analysis carried out included frequency analysis, mean analysis, and reliability test. Frequency analysis is used to understand the demographic variables and background of respondents, thereby providing a comprehensive picture of the composition of participants. Mean analysis explains students' detailed perceptions regarding the use of AI chatbots in their Islamic religious education learning. Feedback is grouped into different factors to gain specific insights, represented by mean values and standard deviations.

Independent sample t-tests are important to ascertain whether there are significant differences in perceptions of chatbot use based on students' previous experiences. This provides insight into the influence of chatbot familiarity on student perceptions. Finally, survey reliability testing was conducted to ensure consistency and credibility of responses. Cronbach's α coefficient was used to measure reliability, and as presented in Table 2, a reliability coefficient of 0.891 indicates a high level of confidence in the survey instrument.

3. FINDINGS AND DISCUSSION

This section presents a summary of the key findings regarding the impact of AI chatbots in the context of higher education. The findings revealed include the influence of AI chatbots on student learning and productivity, factors that influence student acceptance of this technology, the benefits of chatbots in supporting learning and improving academic quality, limitations experienced in their use, as well as ethical issues that arise in relation to the use of chatbots in higher education settings. This analysis provides a comprehensive overview of the potential benefits and challenges associated with the integration of AI chatbots in higher education institutions.

3.1. Impact on Learning and Productivity

The use of artificial intelligence (AI), especially AI Chatbots, has become an increasingly relevant topic in the world of education (Aleedy et al., 2022; Clarizia et al., 2018). The impact of AI Chatbots on student learning and academic productivity is an important focus in this research. Based on Figure 1, the majority of respondents (70.4%) have been familiar with the term artificial intelligence (AI) for more than six months, indicating that AI is increasingly known and widely used in various fields, including education. In the context of Islamic learning, ChatGPT is the AI Chatbots most frequently used by students (70.4%), followed by ChaPDF (15.5%), Jenni AI (3.7%), and others (10.7%), as shown in Figure 2. This indicates that ChatGPT is the main choice for students to support Islamic religious learning.

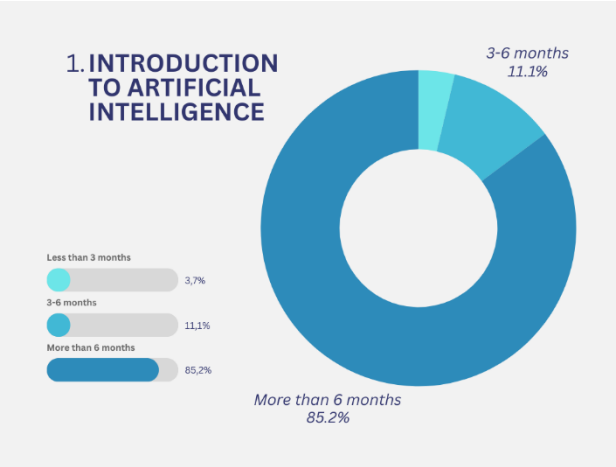

Figure 1. Introduction to artificial intelligence

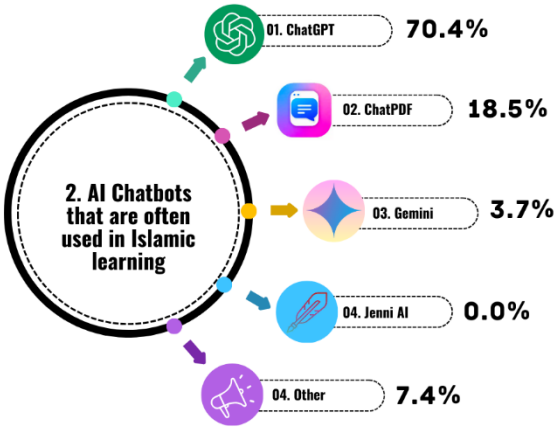

Figure 2. AI Chatbots that are often used in Islamic learning

As shown in Figure 2, 70.4% of respondents have been familiar with AI for over six months, indicating widespread use in education. Among AI chatbots used for Islamic religious education, ChatGPT is the most commonly utilized (70.4%), followed by ChaPDF (15.5%) and Jenni AI (3.7%).

Then, based on Table 3 below, most respondents (55%) have used AI Chatbots for studies or academic assignments for more than 6 months, indicating an increase in the use of AI Chatbots to help students study and complete assignments. AI Chatbots are most frequently used for academic purposes 1-2 times a week (40.7%), showing consistency in use to help students learn. The type of academic activity most often carried out with the help of AI Chatbots is summarizing material (37.48%), followed by creating assignments (13.7%), looking for references (13.7%), doing practice questions (14.8%), and others (10.3%). This shows that AI Chatbots can be used for various types of academic activities. Most respondents (57%) rely on AI Chatbots as the main source of information in completing academic tasks, indicating that AI Chatbots are considered a trustworthy and reliable source of information.

Table 3. Academic use of AI Chatbots

Statements	Number of responses and percentages (n/f)				
3. The duration of using AI Chatbots for academic tasks	Less than 3 months	3-6 months	More than 6 months		
	4 / 14.8%	8 / 29.6%	15 / 55.6%		
4. Frequency of use of AI Chatbots in a week for academic purposes	Several times a week	Once a week	Several times a month	Rarely	
	19 / 70.4%	2 / 7.4%	3 / 11.1%	3 / 11.1%	
5. Frequent academic activities done with AI Chatbots	Writing assignments/essays	Summarizing or paraphrasing	Taking notes	Doing research	Other
	8 / 29.6%	10 / 37.0%	1 / 3.7%	4 / 14.8%	4 / 14.8%
6. Trust in AI Chatbots as a primary source of information in academic tasks	Always	Never	Often	Rarely	Sometimes
	2 / 7.4%	0 / 0.0%	10 / 37.0%	5 / 18.5%	10 / 37.0%
7. Effectiveness of AI Chatbots in improving productivity and	Very useful	Somewhat useful	Neutral	Somewhat not useful	Not useful

	quality of academic work					
		16 / 59.3%	9 / 33.3%	2 / 7.4%	0 / 0.0%	0 / 0.0%
8.	Time allocated to use AI Chatbots in academic activities	<10 minutes	10-30 minutes	30 minutes to 1 hour	1-2 hours	More than 2 hours
		0 / 0.0%	10 / 37.0%	11 / 40.7%	3 / 11.1%	3 / 11.1%
9.	Ability to use AI Chatbots for academic tasks	Expert/advanced	able but not so expert	Still needs improvement		
		8 / 29.6%	11 / 40.7%	8 / 29.6%		

According to the majority of respondents (50%), the use of AI Chatbots is quite effective in increasing productivity and the quality of academic work, indicating that AI Chatbots can help students learn more effectively and efficiently. The average duration of use of AI Chatbots for academic activities is 1-2 hours, indicating reasonable and not excessive use. Most respondents (40.7%) rated their ability to use AI Chatbot features to solve problems or support academic tasks as quite good, indicating that AI Chatbots are easy for students to use and understand.

In conclusion, AI Chatbots have proven to be useful for helping students study and complete academic assignments. AI Chatbots can be used for various types of academic activities, such as summarizing material, creating assignments, looking for references, doing practice questions, and others. The results of this survey are in line with research conducted by Das & JV (2024) that college students have a positive perception of the use of ChatGPT in education. They feel that ChatGPT helps understand complex concepts, personalize learning, increase academic confidence, and find creative solutions. AI Chatbots are also considered a trusted and reliable source of information (Lee & Maeng, 2023). However, the use of AI Chatbots in Islamic religious learning still needs to be improved. Therefore, it is necessary to train and educate students on how to use AI Chatbots appropriately and effectively. In addition, the development of AI Chatbots specifically designed for Islamic religious learning needs to be carried out to better suit students' needs.

3.2. Factors Influencing Acceptance

The acceptance of AI chatbots among students is influenced by several factors such as perceived usefulness, ease of use, security, and enjoyment. These aspects are critical in shaping students' readiness to integrate AI chatbots into educational contexts. Subsequently, the researcher further explored these factors in college students' acceptance of AI chatbots during their learning process. Below is a table presenting survey results pertaining to these factors:

Table 4. Factors influencing the acceptance of AI Chatbots

Statements	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
10. *Chatbots* helps me save time and money in completing academic assignments (A)	1	3.7	23	85.2	3	11.1				
11. *Chatbots* effective in helping me complete academic assignments and can be used without space and time limitations (B)	2	7.4	19	70.4	4	14.8	2	7.4		
12. *Chatbots* can be used directly in a web browser without installing a separate application (C)	4	14.8	20	74.1	3	11.1				
13. *Chatbots* designed to be simple, user-friendly, without the need for complicated	4	14.8	19	70.4	3	11.1	1	3.7		

menus or buttons, and the procedures (such as account creation, login, and search) are easy to carry out (D)								
14. Once the conversation with chatbots begins, the process of getting the desired information or response is very easy and clear, without difficulty (E)	1	3.7	21	77.8	3	11.1	2	7.4
15. I recommend to colleagues to use Chatbots to help the learning process (F)	3	11.1	21	77.8	3	11.1		

Based on the survey results above, it can be concluded that there are several factors that cause AI Chatbots to be accepted by students:

First, perceived usefulness. Most respondents (85.2%) believe that chatbots help save time and costs in completing academic assignments. In addition, 70.4% agreed that chatbots are effective to use without space and time restrictions, while 74.1% agreed that chatbots can be used directly in the browser without installing additional applications. This suggests that students see chatbots as a useful tool in helping them learn and complete academic assignments efficiently. Second, perceived ease of use. As many as 70.4% of respondents agreed that chatbots are designed to be simple and user-friendly, with procedures that are easy to carry out. In addition, 77.8% stated that the process of getting information or responses from chatbots was very easy and clear. This shows that students find chatbots easy to use and navigate.

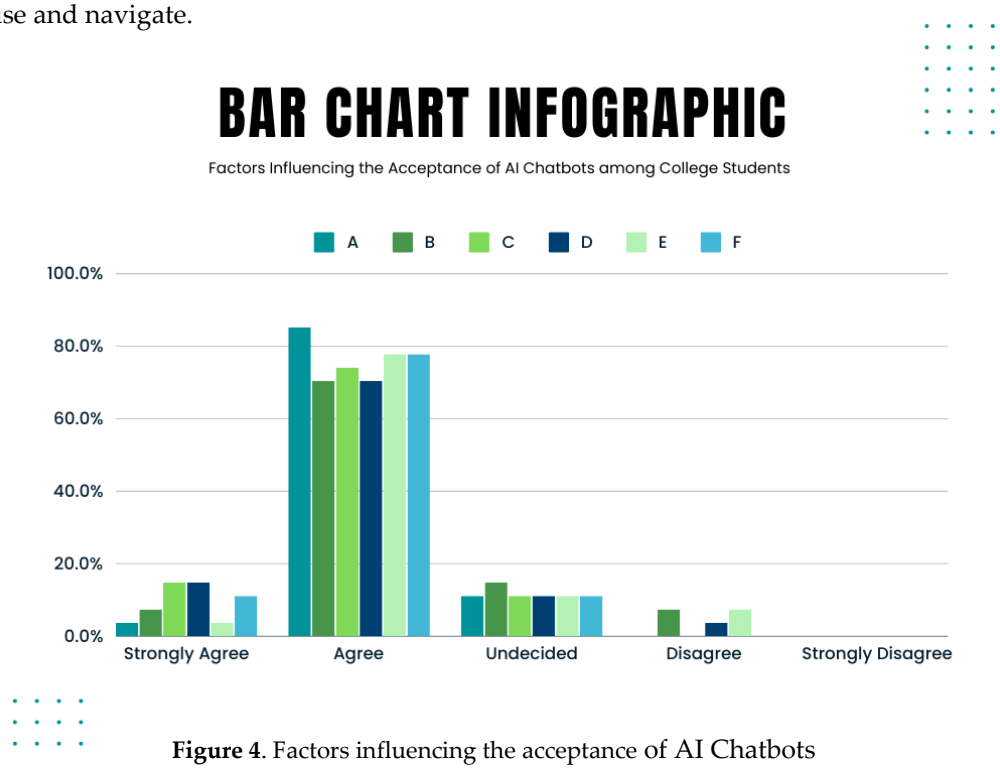

Figure 4. Factors influencing the acceptance of AI Chatbots

Third, security perception. From the survey results, 59.3% of respondents agreed that chatbots maintain the confidentiality of personal data, and 62.6% felt safe using chatbots. This shows that despite concerns about security, the majority of respondents believe that chatbots are safe to use. Fourth, perception of pleasure (perceived enjoyment). As many as 48.1% of respondents felt happy and entertained interacting with chatbots in learning, while 53.7% felt that using chatbots made the learning process more interesting and enjoyable. This shows that some students enjoy using chatbots in learning.

To increase the acceptance of AI chatbots among students, it is recommended that more sophisticated and accurate chatbots be developed, simple and user-friendly designs should be ensured,

personal data must be kept secure, and an engaging and enjoyable learning experience should be provided. If you are interested in using AI chatbots, choose those developed by trusted developers, read user reviews, use them carefully and responsibly, and report them if you experience problems. AI chatbots can be a useful tool in learning if used wisely.

3.3. Benefits and Limitations of AI Chatbots in Education

Based on the results of a survey regarding the benefits of chatbots in learning about Islam, the majority of users feel positive benefits from using chatbots. Using a 5-point Likert scale, the survey showed that the majority of respondents (86.1%) agreed or strongly agreed that chatbots provide comprehensive and easy-to-understand answers to a variety of questions, helping them get information quickly and easily. In addition, around 73% of respondents stated that chatbots helped them understand difficult concepts in Islamic religious learning, demonstrating the effectiveness of chatbots in increasing understanding.

Personalization of learning is also one of the main benefits, with almost 90% of respondents agreeing or strongly agreeing that chatbots help them personalize their learning experience according to their needs and style. Chatbots also help in generating creative solutions to academic problems, with around 84% of respondents agreeing to this benefit, indicating that chatbots can encourage critical and creative thinking.

Table 5. Benefits of AI Chatbots

Statements	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
16. *Chatbots* provide comprehensive and easy-to-understand answers to a variety of questions (A)			13	48.1	10	37.0	4	14.8		
17. The use of chatbots helps me understand difficult concepts in studying Islamic religion (B)	2	7.4	15	55.6	8	29.6	2	7.4		
18. I feel chatbots help in personalizing learning and learning experiences (C)			20	74.1	3	11.1	4	14.8		
19. The use of chatbots can help produce more creative solutions to academic problems (D)			18	66.7	7	25.9	2	7.4		
20. The use of chatbots can improve writing skills (E)			16	59.3	5	18.5	6	22.2		
21. I can learn independently about Islamic religious education materials and concepts in real-time (F)	2	7.4	15	55.6	6	22.2	4	14.8		
22. Provide direct feedback on learning content (G)			15	55.6	10	37.0	2	7.4		
23. *Chatbots*offering customized information based on user preferences and needs (H)	1	3.7	14	51.9	6	22.2	6	22.2		
24. Even if I ask in any language, I can easily obtain various information related to Islamic religious education (I)	1	3.7	15	55.6	7	25.9	4	14.8		

In the aspect of writing skills, around 77.8% of respondents agreed or strongly agreed that chatbots could improve their writing skills. Chatbots also enable real-time self-paced learning, with around 70.4% of respondents stating that they can learn anytime and anywhere. Immediate feedback on learning content is also a benefit recognized by around 62.6% of respondents, increasing the

effectiveness of learning by providing immediate feedback. In addition, around 55.6% of respondents agreed that chatbots offer customized information based on user preferences and needs, and around 59.3% of respondents agreed that they can obtain information related to Islamic religious education easily, even if asked in any language.

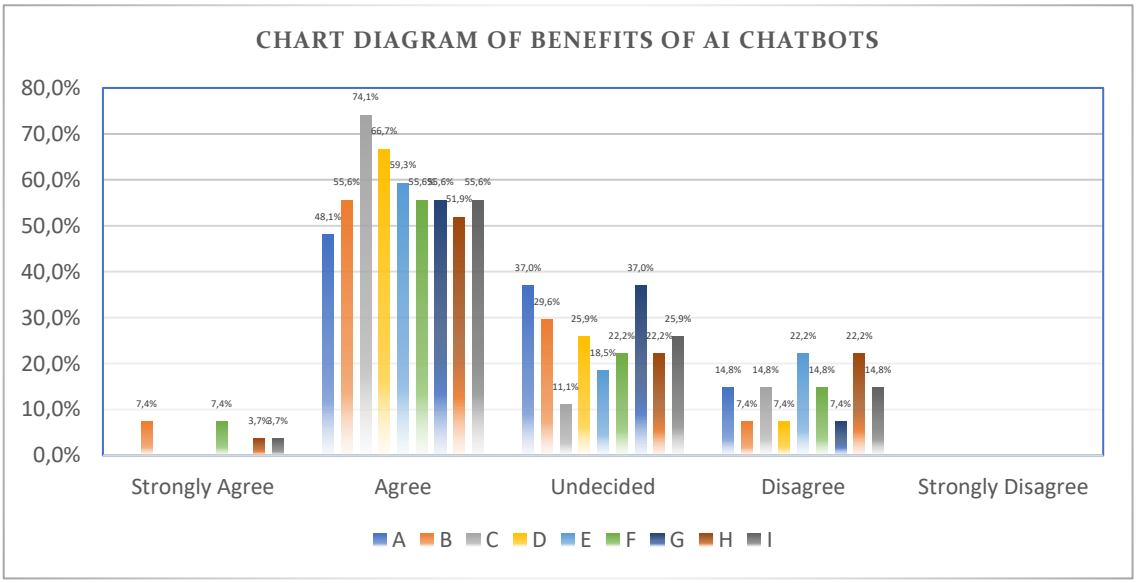

Figure 5. Benefits of AI Chatbots

Overall, this survey shows that chatbots provide many benefits for users in learning about Islam. Chatbots not only help in obtaining information and understanding difficult concepts, but also support self-directed learning, improve writing skills, provide immediate feedback, and offer information tailored to user needs. This is in line with several previous studies where chatbots provide many benefits for users in learning (Adamopoulou & Moussiades, 2020; Ciechanowski et al., 2019; Cunningham-Nelson et al., 2019).

This survey found that although chatbots have many benefits, users also feel several limitations in their use for Islamic religious learning. The table below shows the results of a survey of chatbot users regarding the limitations of chatbots in learning Islamic religion. Here are some key findings about the limitations of chatbots: first, as many as 81.5% of respondents agreed or strongly agreed that chatbots cannot understand language and cultural nuances, indicating limitations in providing accurate and relevant answers to users from various backgrounds. Additionally, 63% of respondents felt that chatbots were unable to provide personalized answers to personal questions, indicating limitations in providing needed emotional or spiritual support.

Second, as many as 53.7% of respondents agreed or strongly agreed that chatbots cannot help build community and relationships with other people, indicating that the learning experience provided by chatbots is not the same as human-to-human interaction. Additionally, 48.1% of respondents agreed or strongly agreed that chatbots cannot help develop critical and analytical thinking skills, indicating limitations in helping users learn deeply and understand complex concepts.

Third, as many as 44.4% of respondents felt that chatbots were unable to provide an interactive and engaging learning experience, indicating that chatbots may be less likely to motivate users to learn and maintain their interest. Meanwhile, 40.7% of respondents agreed or strongly agreed that chatbots cannot help develop character and morality, indicating that chatbots may be less effective in helping users apply Islamic religious values in their lives.

Table 6. Limitations of AI Chatbots

Statements	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
25. The use of chatbots for academic assignments influences feelings of dependence on peers and teachers (A)	1	3.7	9	33.3	6	22.2	11	40.7		
26. I feel the use of chatbots can reduce creativity and critical thinking (B)	3	11.1	13	48.1	4	14.8	7	25.9		
27. The use of chatbots creates uncertainty about the reliability of the information provided (C)			12	44.4	11	40.7	4	14.8		
28. There are difficulties in using chatbots due to inaccurate or potentially misleading information (D)			13	48.1	11	40.7	3	11.1		
29. I feel that the use of chatbots may result in a loss of understanding of the nuances of certain topics or assignments of Islamic religious education materials? (E)	1	3.7	8	29.6	13	48.1	5	18.5		
30. *Chatbots*does not have voice recognition capabilities, so it does not help improve speaking skills such as pronunciation or intonation (F)	1	3.7	17	63.0	9	33.3				
31. *Chatbots*only offers predetermined general responses or answers; it does not provide customized feedback taking into account individual learning levels, preferences, or goals (G)	1	3.7	14	51.9	5	18.5	7	25.9		
32. There is inconvenience when chatbots stop working due to technical problems during use, making it difficult to use chatbots smoothly during that period of time (H)	2	7.4	17	63.0	6	22.2	2	7.4		
33. *Chatbots*have limitations in human-like conversational capabilities, making it difficult to provide appropriate dialogue based on emotions or situations and to understand the user's intent behind their questions (I)	1	3.7	22	81.5	4	14.8				

From the table above, it can also be concluded that 37% of respondents agreed or strongly agreed that chatbots cannot provide spiritual guidance and advice, indicating limitations in helping users overcome spiritual and moral problems. Lastly, 33.3% of respondents agreed or strongly agreed that chatbots cannot help prepare oneself for the afterlife, indicating that chatbots may be less helpful in achieving users' spiritual goals.

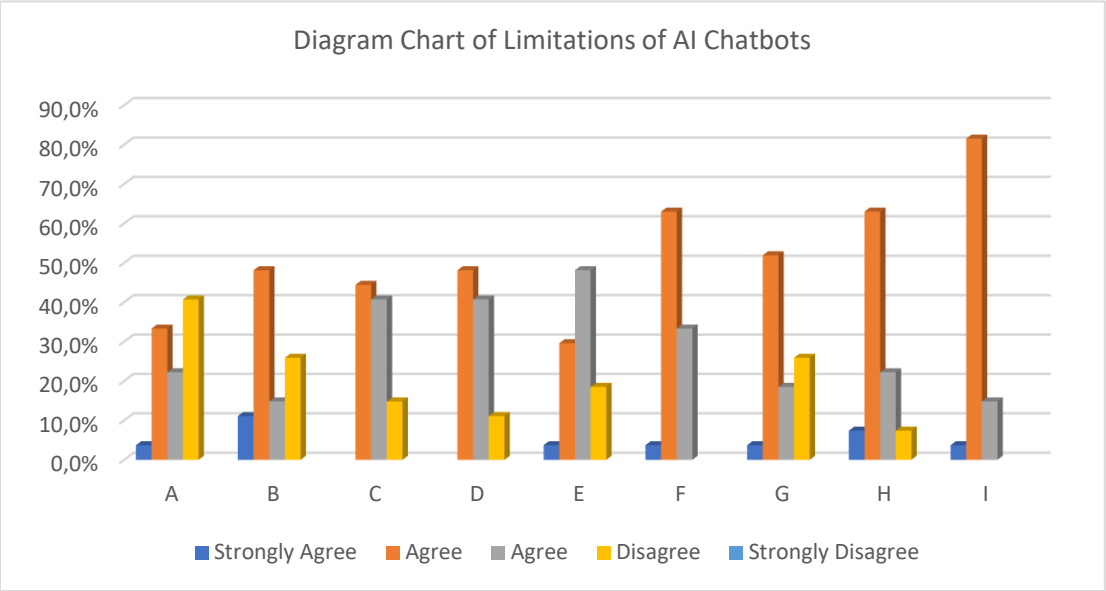

Figure 6. Limitations of AI Chatbots

Overall, this survey shows that chatbots have several limitations in Islamic religious learning. Chatbots may not be able to understand language and cultural nuances, provide personalized answers, help build communities, develop critical thinking skills (Cotton et al., 2024), provides an interactive learning experience, helping to develop character and morality (Eke, 2023b), provides spiritual guidance and advice, and helps prepare oneself for the afterlife. To overcome the limitations of chatbots in learning, support from staff is needed to build critical thinking skills, providing interactive material(Crompton & Burke, 2023), and assists in character development and spiritual guidance. Users still need to look for additional learning resources such as books, articles, lectures, and communities.

3.4. Ethical issues of ChatGPT in higher education

The use of artificial intelligence (AI) technology is becoming increasingly widespread in higher education settings, with ChatGPT being one prominent example. However, with this development comes a series of ethical issues that need to be seriously considered. This subheading explains some of these issues by referring to the results of a survey revealing students' views on the use of ChatGPT in higher education, highlighting their various concerns regarding the ethics and implications of its use.

Table 7. Ethical issues of ChatGPT in higher education

Statements	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
34. AI Chatbots raise plagiarism concerns because they produce text without proper attribution.	2	7.4	18	66.7	4	14.8	3	11.1		
35. AI Chatbots raise concerns about the fairness and accuracy of academic assessments.	1	3.7	18	66.7	6	22.2	2	7.4		
36. AI Excessive use of Chatbots can lead to dependency and addiction.	2	7.4	17	63.0	6	22.2	2	7.4		
37. Users usually worry that their personal data will be leaked when registering with various AI Chatbots.	1	3.7	14	51.9	6	22.2	6	22.2		

38.	AI Chatbots may collect personal data without the user's knowledge/consent, so that it can be used for other purposes (for example, marketing).	2	7.4	9	33.3	13	48.1	3	11.1
39.	AI Chatbots have the potential to provide discriminatory or biased information.	4	14.8	8	29.6	11	40.7	4	14.8
40.	AI Chatbots can display data without citations, potentially raising issues of originality, creativity and copyright infringement.	3	11.1	19	70.4	5	18.5		

The survey results show that students have significant concerns regarding a number of ethical issues related to the use of ChatGPT as in the table below. First, the majority of students (74%) stated that they strongly agreed or agreed that the use of ChatGPT could trigger plagiarism problems because it was able to produce text without providing proper attribution. This indicates that students are aware of the potential for ChatGPT to be misused in the context of cheating or plagiarizing. Second, almost two-thirds of students (66.7%) expressed concerns about the fairness and accuracy of academic assessments which could be affected by the presence of AI Chatbots. They are concerned that ChatGPT could be used to commit fraud or manipulation in assessments, which could potentially harm the fairness and accuracy of academic assessments.

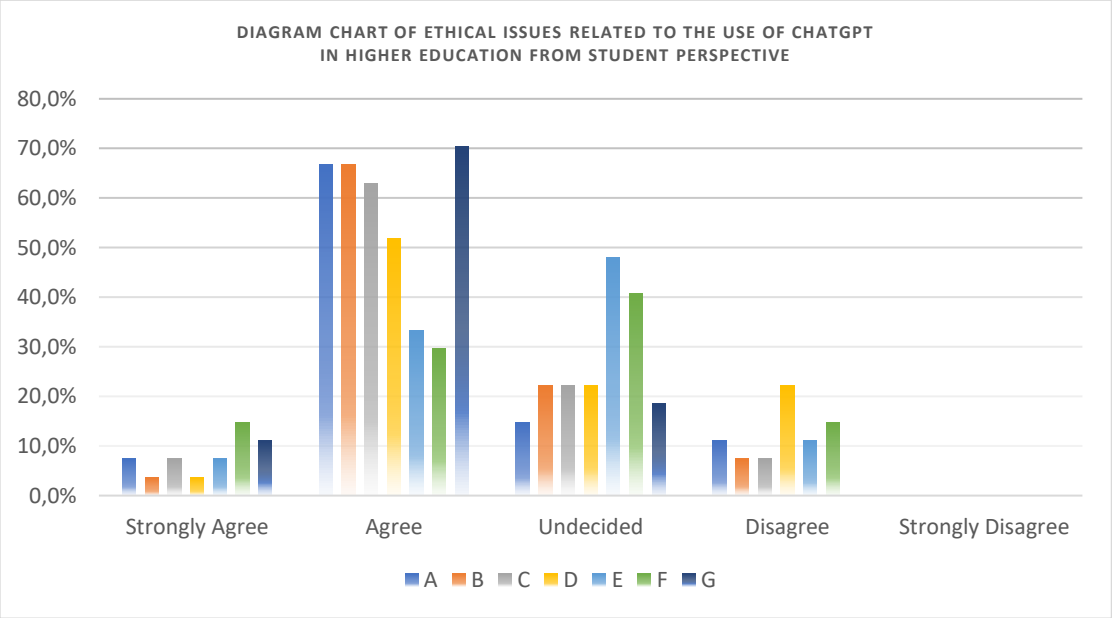

Figure 7. Ethical issues of ChatGPT in higher education

Third, around two-thirds of students (63%) expressed concern about the possible dependency and addiction that could be caused by excessive use of Chatbots. This shows concern that ChatGPT could become a source of dependency that disturbs their concentration and prevents them from engaging in proper academic activities. Fourth, almost half of students (51.9%) expressed concerns about the privacy of their personal data which could potentially be threatened when they interact with various AI Chatbots. This reflects their concerns about ChatGPT's use of data without their consent or knowledge.

Fifth, nearly a third of students (33.3%) expressed concern that AI Chatbots might collect personal data without user consent, which could then be exploited for undesirable purposes such as marketing.

This shows their concern for the protection of their privacy and the use of their data by ChatGPT. Sixth, almost a third of students (29.6%) expressed concern that AI Chatbots have the potential to present discriminatory or biased information. This reflects their concerns that ChatGPT could be used to spread information that is detrimental to certain groups. Lastly, nearly a quarter of students (22.2%) expressed concern that AI Chatbots could display data without providing proper citations, potentially violating copyright and academic integrity.

Overall, this survey highlights that students have significant concerns about a number of ethical issues related to the use of ChatGPT. Therefore, it is important for universities to consider these concerns in designing policies and guidelines for the use of ChatGPT in the campus environment. In addition, educating students about the ethical risks associated with ChatGPT is also important. As a recommendation, universities can take the following steps:

1. Develop clear policies and guidelines regarding the use of ChatGPT, including limitations on its use such as in assignments and exams (Sobaih et al., 2024).
2. Educate students about the potential ethical risks associated with ChatGPT, including plagiarism, cheating, and copyright infringement (Cotton et al., 2024; Dehouche, 2021).
3. Provide resources to students to help them use ChatGPT responsibly, such as tutorials and ethical usage guides (Halaweh, 2023; Shoufan, 2023).
4. Monitoring the use of ChatGPT to ensure that it is used in accordance with established policies and guidelines (Bašić et al., 2023).

By taking these steps, universities can ensure that the use of ChatGPT on campus is done in a safe, ethical, and responsible manner.

4. CONCLUSION

The integration of artificial intelligence (AI) technologies, particularly ChatGPT, in Islamic religious education provides both promising benefits and significant challenges from a doctoral student's perspective. This research underscores the transformative potential of AI technologies in enhancing learning experiences and academic productivity. ChatGPT, renowned for its ability to generate human-like responses, facilitate various educational tasks such as summarising material, and provide timely feedback, has gained considerable traction among students in an Islamic religious education setting. The benefits of AI chatbots are multifaceted. Students report that AI chatbots help them understand complex concepts more effectively and provide personalised learning experiences tailored to individual needs, thus improving overall educational outcomes. In addition, the feedback and suggestions provided by the chatbot help students in refining their writing skills. AI chatbots offer instant access to information, making it easier for students to find resources and answers quickly, thus saving time and facilitating learning anytime and anywhere. In addition, some students enjoy interacting with chatbots, which adds an element of interactivity and engagement to their learning process.

Despite their advantages, AI chatbots have limitations such as difficulty understanding language nuances and cultural contexts, leading to misunderstandings. They are less effective than human educators in promoting critical thinking, community building, and spiritual guidance. Ethical concerns include plagiarism, compromised academic integrity, data privacy breaches, and biased information. Overreliance on AI chatbots can cause students to bypass actual learning. To address these issues, it is recommended to design culturally sensitive chatbots for Islamic education, integrate chatbots with other tools to promote critical thinking, educate students on ethical AI use, and establish clear guidelines to protect academic integrity and data privacy. Adopting a balanced approach to AI in education, universities can ensure these technologies support personalized learning while adhering to ethical standards.

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