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Islamic Religious Education Students' Perceptions on the Utilization of Artificial Intelligence as a Learning Resource in the Digital Era

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Abstract: This study aims to analyze the perception of Islamic Religious Education students at the State Islamic University of North Sumatra towards the use of Artificial Intelligence as a learning resource. This study uses a qualitative method with a phenomenological type. Data collection techniques used are questionnaires, observations, interviews, and documentation. Furthermore, the data was analyzed using the Miles and Huberman model combined with ATLAS.ti software. The results of this study indicate that; 1) The information provided by Artificial Intelligence is not completely accurate because there are deficiencies in the depth of explanation and the references listed are not completely valid; 2) AI provides ease of access and use in the learning process; 3) The use of AI is considered efficient in terms of time and cost; and 4) Student ethics in using Artificial Intelligence as a learning resource is not yet entirely good, although it shows a positive direction and growing ethical awareness. This study suggests that in the future, Artificial Intelligence developers need to connect Artificial Intelligence systems with scientific repositories, and that their use must be accompanied by strengthening digital literacy and critical attitudes from users.
Keyword: *Artificial Intelligence, Learning Resources, Digital Era*

Abstrak: *Penelitian ini bertujuan untuk menganalisis persepsi mahasiswa Pendidikan Agama Islam di Universitas Islam Negeri Sumatera Utara terhadap pemanfaatan Artificial Intelligence sebagai sumber belajar. Penelitian ini menggunakan metode kualitatif dengan jenis fenomenologi. Teknik pengumpulan data yang digunakan ialah angket/kuesioner, observasi, wawancara dan dokumentasi. Selanjutnya data di analisis menggunakan model Miles dan Huberman yang dipadukan dengan menggunakan software ATLAS.ti. Hasil penelitian ini menunjukkan bahwa; 1) Informasi yang diberikan Artificial Intelligence belum sepenuhnya akurat dikarenakan ada kekurangan dalam kedalaman penjelasan dan refrensi yang dicantumkan tidak sepenuhnya valid; 2) AI memberikan kemudahan akses dan penggunaan dalam proses pembelajaran; 3) Penggunaan AI dinilai efisien dalam hal waktu dan biaya; dan 4) Etika mahasiswa dalam menggunakan Artificial Intelligence sebagai sumber belajar belum sepenuhnya baik, meskipun menunjukkan arah yang positif dan kesadaran etis yang mulai tumbuh. Penelitian ini menyarankan agar kedepannya pengembang Artificial Intelligence perlu menghubungkan sistem Artificial Intelligence dengan repositori ilmiah serta dalam pemanfaatannya harus disertai dengan penguatan literasi digital dan sikap kritis dari pengguna.*
Kata kunci: *Artificial Intelligence*, Sumber Belajar, Era Digital

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Introduction

The development of digital technology has brought about significant changes in various sectors of life, including education. The digital revolution, marked by the presence of modern information and communication technology, has transformed the way people interact, work, and even learn digitally (Nazmi Handayani Harahap; Abd razak Zakaria; Hasan Basri, 2024; (hmad Syahri Mubarok, 2023). One of the latest technologies that has a significant impact on human life is Artificial Intelligence (AI). Artificial Intelligence is a computer system that can imitate human intelligence, such as the ability to think, solve problems, learn from experience, and make decisions (Fauziyati, 2024; Hakim et al., 2024). This technology is developing rapidly and has been applied in various sectors, such as industry, health, finance, transportation, and especially education (Zakiyah et al., 2024). AI is not only capable of storing and processing large amounts of data, but also provides fast and accurate solutions through advanced algorithm processing based on statistics and mathematics (Zebua et al., 2023).

In education, AI functions as a supporter of efficient and interactive learning processes. Some implementations include intelligent chatbots, learning recommendation systems, and virtual tutors. Developed countries like Japan and Australia have developed AI systems capable of replacing tutors to a limited extent. An AI robot in Japan successfully passed the entrance exams to hundreds of private universities (Arai, 2015). This shows that AI is not just a future concept, but has become part of the global educational reality. As in Indonesia, the use of AI in education is starting to show promising developments. According to a 2023 report by Oxford Insights, Indonesia ranks fourth in Southeast Asia in the government readiness index for AI. It is projected that by 2030, the Indonesian AI market will reach US$10.88 billion, with an annual growth rate of 28.69%. This indicates significant potential for integrating AI into the national education system.

Students in the digital age are increasingly familiar with various AI-based applications such as ChatGPT, Gemini AI, and Perplexity AI. These applications allow students to quickly access information, receive explanations of complex material, and even complete academic assignments efficiently (Pakpahan, 2021). AI as a learning resource has been proven to increase motivation and facilitate understanding of material, especially in independent learning (Naila et al., 2023); ((Wibowo et al., 2023).

However, the use of AI in learning is not without challenges. Several studies have highlighted the potential negatives of AI use, such as dependence on

technology, decreased critical thinking skills, and a lack of in-depth reflection on the material (Manongga et al., 2022). Therefore, it is important to understand the perceptions of students as direct users of this technology, because their perceptions will determine the extent to which the technology is accepted and used wisely in the learning process.

In the context of Islamic Religious Education (PAI), the integration of technologies such as AI presents unique challenges and opportunities. PAI is not solely oriented toward cognitive aspects but also shapes students' values, character, and spirituality. Therefore, the use of AI as a learning resource in PAI requires critical examination to ensure it is not merely a technical aid but also aligned with Islamic values and the goals of religious education (Fauziyati, 2024); (Maritsa et al., 2021).

Islamic Religious Education students at the State Islamic University of North Sumatra are future educators facing the challenges of the 21st century. Initial observations indicate that many of them have used AI to prepare papers, articles, and other academic assignments. This trend indicates that AI has become part of their learning practices. However, little is known about how they interpret this use of AI: whether as a mere tool or as a partner in more meaningful learning.

Based on this background, this study aims to explore the perceptions of Islamic Religious Education students at UIN SU regarding the use of Artificial Intelligence as a learning resource in the digital era. This study is crucial for understanding the extent to which AI has been integrated into Islamic Religious Education (PAI) learning, how students respond to it, and its implications for religious and contextual educational processes. The findings of this study are expected to contribute to the development of technology-based learning models that remain rooted in Islamic values.

Methods

This study uses a qualitative method with a phenomenological type. According to John W. Creswell (Creswell, 2014), Qualitative research can be interpreted as research used to examine human and social problems. While phenomenological research is a type of qualitative research that aims to understand the life experiences of individuals from their perspectives that this design focuses on how individuals give deep meaning to their experiences (Rosmita et al., 2024). This research was conducted at the Islamic Religious Education Study Program, Faculty of Tarbiyah and Teacher Training, State Islamic University of North Sumatra, located at Jalan Wiliem Iskandar, Pasar V, Medan Estate, 20371. There are two data sources in this study, namely primary data sources obtained through interviews with PAI FITK UINSU students of the 2022 intake. While secondary data sources were obtained from the profile of the Islamic

Religious Education study program, State Islamic University of North Sumatra and data on the condition of lecturers and students in the Islamic Religious Education study program.

Data collection techniques in this study are: questionnaires. Observation, interviews, and documentation. In this study, the data collection method used is using a direct questionnaire. The questionnaire was given directly to respondents who wanted to be investigated. So in this case, data collection obtains answers from the first source, without using intermediaries to obtain answers. Through this questionnaire, the researcher tried to find out how often students use AI as a learning resource, and what types of Artificial Intelligence (AI) are widely used by PAI students, UIN SU class of 2022, in learning.

The observation used by the researcher is participant observation, meaning that the researcher is directly involved in the activity of finding the required data through observation. In carrying out the observation, the researcher will observe UIN SU PAI students in activities involving Artificial Intelligence as a learning resource, then understand their perceptions and experiences. The data collection technique through this interview activity is used by the researcher to obtain objective and real data under the conditions in the field. This interview was conducted at the Islamic Religious Education Study Program, Faculty of Tarbiyah and Teacher Training, State Islamic University of North Sumatra, by interviewing 20 students to find out their responses to the use of Artificial Intelligence as a learning resource in the digital era.

Meanwhile, the documentation data collection technique in this study, the researcher tried to collect supporting data other than observations and interviews related to Artificial Intelligence as a learning resource in the digital era, conducted in the Islamic Religious Education Study Program, Faculty of Tarbiyah and Teacher Training, State Islamic University of North Sumatra. The supporting data in question are: data on the condition of lecturers and students.

The data analysis technique in this study follows the Miles and Huberman model, namely data reduction, data display, and conclusion drawing/verification (Agusven et al., 2023). These three stages are interrelated and combined using ATLAS.ti software version 25 to support accuracy, efficiency, and systematicity in the qualitative data analysis process.

The use of ATLAS. Version 25 in the three stages of data analysis not only simplifies the process of managing qualitative data but also increases accuracy, transparency, and systematicity in compiling interpretations.

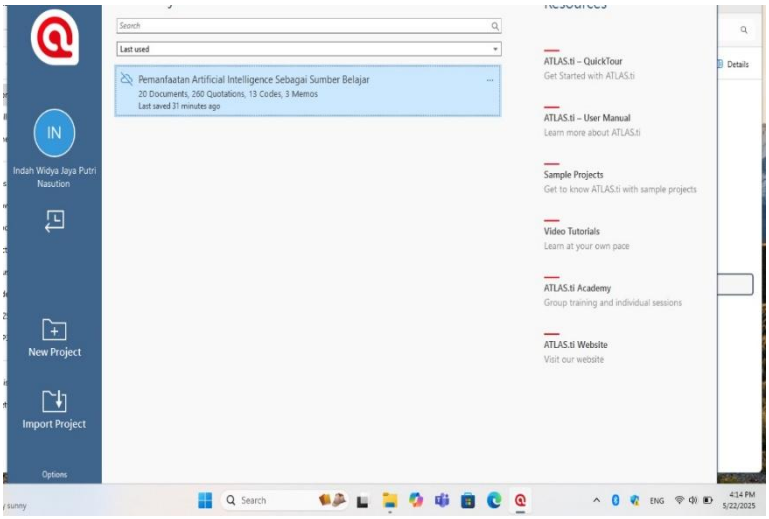

Figure 1. Initial View of ATLAS.ti 25

Finally, the data validity checking technique, in this study, will use the data validity testing technique using Lincoln and Guba's theory in Eko Haryono (Haryono et al., 2024) which includes: credibility, transferability, dependability, and confirmability.

Results And Discussion

Result

Based on the processed data, specifically in the word cloud section, the word "no" appears dominantly in students' perceptions, meaning that most students stated that the information provided by AI was inaccurate. As informant (I12) stated, "In my opinion, the information provided by AI is not always accurate, sometimes I find that AI provides answers that are not comprehensive, references that are not appropriate, meaning they cannot be accessed." This shows that even though AI can provide answers quickly, these answers still have limitations and cannot be said to be accurate, such as concise AI answers that are not extensive, references provided by AI are sometimes inappropriate and cannot be accessed, resulting in AI answers that are not completely accurate.

Most students explicitly stated that AI often provides answers that are a general overview, not in-depth, and sometimes irrelevant in an academic context. As expressed by Informant (I18) "I think the information provided by AI is only 80% accurate. This means that there are still inaccuracies in the answers given by AI, when I verify from other sources such as books I get a more extensive explanation, whereas in AI it is only in the form of a summary, and sometimes the points given are still lacking" this shows that the answers given by AI are not as extensive as those in books, because AI only provides explanations in the form of

summaries and the answers given by AI are not in-depth, this is what causes AI answers to be not completely accurate.

Informant (I14) also stated "In my opinion, the information provided by AI cannot be said to be 100% accurate, because sometimes I find that AI answers are invalid, meaning the sources used cannot be accessed and the information provided is not comprehensive" the depth of the answers and the accessibility of the references listed are the main triggers that cause the information provided by AI to not always be accurate. This argument was conveyed by students who had certainly checked first, as conveyed by the informant (I5) "I checked first either through books or journals. Based on my experience, the information provided by AI is not entirely accurate. Sometimes, AI provides answers that are not very comprehensive. AI does not always know the official source, especially if the question is not specific AI can provide answers that are off the mark".

This verification process demonstrates students' critical awareness in evaluating the accuracy of the information provided by the AI. This means that students do not directly use the AI's answers, but rather develop a critical attitude, which involves checking the accuracy of the AI's information first. This is also evident in the word cloud, where the words "source," "book," and "journal" appear, indicating that students tend to compare the AI's answers with academic references as a benchmark for accuracy and completeness.

Overall, the analysis results show that students' perceptions of the accuracy of AI information remain skeptical-critical (not immediately believing it but still considering it logically and objectively). While AI can be a useful initial information tool, it cannot be fully relied upon for scientific information that requires source accuracy, theoretical validation, and detailed explanations. Students' tendency to conduct further verification underscores the importance of critical thinking skills in utilizing AI as a learning resource.

Second, suitability. This suitability dimension refers to the relevance of the information provided to the user. Based on the processed data, specifically in the information suitability section, a variety of responses emerged from informants regarding the suitability of the information generated by AI. In general, students stated that they had never encountered inappropriate information from AI. This is based on the emergence of dominant words seen in the processed results of ATLAS. ti, specifically in the word cloud section, there is the word "no," and the informant (I4) stated, "During using AI, I have never encountered inappropriate information, AI provides answers according to needs." This statement shows that AI can provide information according to individual needs, and the answers given are appropriate to the type of question or topic asked.

Second, suitability. This suitability dimension refers to the relevance of the information provided to the user. Based on the processed data, specifically in the information suitability section, a variety of responses emerged from informants regarding the suitability of the information generated by AI. In general, students stated that they had never encountered inappropriate information from AI. This is based on the emergence of dominant words seen in the processed results of ATLAS.ti, specifically in the word cloud section, there is the word "no" and informant (I4) stated "During using AI, I have never encountered inappropriate information, AI provides answers according to needs." This statement shows that AI can provide information according to individual needs, and the answers given are appropriate to the type of question or topic asked. These findings raise concerns regarding the depth of information provided by AI, particularly when compared to more credible conventional academic sources, and the inconsistency of the answers given to the questions asked.

Third, information validation. Validation focuses on whether the information from the AI is double-checked or further examined by students to determine its accuracy. Based on the data processing results presented above, specifically in the section on interview data coding, it appears that most students view validation as a crucial step in ensuring the accuracy of the information provided by the AI. Almost all informants stated that they do not simply accept the AI's answers, but rather verify them first with more credible sources.

Several students explicitly explained how the validation process was carried out. Informant (I11) stated, "What I do is verify it first, either from books, journals, or articles to ensure the accuracy of the information provided by the AI." This shows that when the AI provides an answer, students do not immediately copy it raw but first check to ensure the accuracy of the information provided by the AI. The validation process is carried out by referring to scientific sources, such as books, journals, and trusted articles. This is also reflected in the statement of informant (I8) "I first check to ensure accuracy or not, either through books or other documents. In addition, I also always check the references provided by AI, whether the answer is really in the reference, even though sometimes there are reference links that cannot be accessed."

Meanwhile, informant (I13) added that validation needs to be done to avoid fatal errors in the use of information "What I do is of course understand it first to see the suitability of the answer, then to see its accuracy I do a cross check first either from books, journals or articles to ensure its accuracy, from what I did I found that the information from this AI is always appropriate but the level of breadth of information is lacking" from various checks carried out showed that students viewed the information provided by AI as correct, however there were

still limitations such as the lack of breadth of information provided, the references provided could not be accessed, so it was necessary to check first to obtain the truth and depth of the information.

Based on the processed data, namely the word cloud, this can also be evidenced by the emergence of dominant words conveyed by students. Specifically, in the information validation section, the words "ensure and verify" are found, indicating that students do not simply accept information from the AI but rather first check it through various sources to ensure the accuracy of the information provided by the AI, especially if the information will be used in an academic context or scientific assignment.

Overall, the analysis shows that information validation is a key process in students' interaction patterns with AI as a learning resource. Students do not readily accept AI's answers, but instead position them as an initial resource requiring further confirmation. This demonstrates a high level of epistemological awareness and application of information literacy skills among students.

Based on the analysis of these three aspects, namely accuracy, suitability, and information validation, it can be concluded that students view the information provided by Artificial Intelligence as something that is not entirely accurate and cannot be accepted without further checking. Although Artificial Intelligence can provide answers quickly and often informatively, students consider that these answers sometimes still have shortcomings, both in terms of depth of explanation, relevance to the context of the question, and the clarity and validity of the references.

This encourages students to always re-verify information from Artificial Intelligence through other sources such as books, journals, or articles, especially if it will be used for academic purposes or scientific assignments. Thus, Artificial Intelligence is positioned more as an initial tool in information searches, rather than as a primary or final source. This critical and cautious attitude reflects students' awareness of the importance of accuracy, source reliability, and academic responsibility in processing information.

Discussion

PAI Students' Perceptions of the Accuracy of Information Provided by Artificial Intelligence as a Learning Resource in the Digital Era at UIN SU

Accuracy is concerned with how close the measured value is to the true value (Muflikhun & Jamasri, 2024). In determining the accuracy of information provided by AI, researchers analyze aspects of accuracy, suitability, and validation of information to see whether the information from AI is accurate or not. Based on the research results obtained by researchers from 20 PAI students of the 2022 batch,

it was stated that the information provided by Artificial Intelligence was not completely accurate.

Based on the research results, first, the aspect of accuracy of students viewing information or answers provided by AI is not always correct because there are deficiencies in the depth of explanation and accessibility of the references listed. This is in line with research conducted by Floridi and Chiriatti (Floridi & Chiriatti, 2020), which states that AI like ChatGPT often produces information that looks linguistically credible, but is not always factually accurate due to limitations in understanding the context and data sources used. Other studies also state that in the context of reference accessibility, AI sometimes uses outdated or irrelevant sources, so that the information provided is less accurate or less current. This also limits AI's ability to provide answers that are in line with the latest developments in a particular field. (Prahitaningtyas, 2023).

Second, the aspect of suitability. AI is considered by students to not be fully able to answer questions according to the specific context asked, because sometimes the answers given by AI are less extensive and more concise compared to books or journals, and the references given by AI are sometimes invalid and cannot be accessed. According to (Firdaus & Firman, 2023) AI has limitations in knowledge because it only relies on the training data it receives, with limited information, and does not cover the latest developments. AI also cannot understand contexts outside of its knowledge, does not have emotions, beliefs, or personal opinions, and only presents objective information. Therefore, AI tends to provide answers that are less precise and in-depth.

Third, information validation. The results of the study showed that students did not immediately accept information from AI, but rather checked it first through various sources to ensure the accuracy of the information provided by AI, especially if the information would be used in an academic context or scientific assignment. Research conducted by Kasneci (Kasneci et al., 2023) emphasizes the importance of the role of digital literacy in the use of AI, where users in this case, students, must have the skills to evaluate, verify, and compare information from various sources so as not to get caught up in biased or incorrect information. The critical attitude of these students also reflects compliance with the principles of academic ethics, namely, avoiding plagiarism and maintaining honesty in processing information.

Based on these three aspects, it is proven that the information or answers provided by Artificial Intelligence are not entirely accurate and the results of this study also show that students do not immediately rely on AI as the main source in obtaining learning information. Instead, they use AI as an initial tool for exploring information, which must then be validated through valid academic literature.

The information provided by AI is not completely accurate due to the lack of depth of explanation and accessibility of the references listed, so the contribution that researchers can make is that AI developers need to connect AI systems with scientific repositories such as Google Scholar, DOAJ, Scopus, and university digital libraries. This allows AI to produce answers that are based on valid and traceable scientific sources, thereby reducing the risk of inaccurate information or inaccessible references (Nadya et al., 2025). This integration also supports AI in conducting more in-depth and accurate automated literature reviews.

In addition to overcoming the lack of in-depth explanations, developers can improve AI's ability to understand the context and nuances of scientific language. With more advanced NLP, AI can provide more comprehensive and relevant explanations, and can filter out truly important information from valid sources (Yulianto et al., 2024).

PAI Students' Perceptions of the Ease of Using Artificial Intelligence as a Learning Resource in the Digital Era at UIN SU

AI usability refers to how artificial intelligence (AI) technology is designed to be easily accessed, understood, and utilized by users from various backgrounds, including those without special technical skills. The results of the study showed that the use of Artificial Intelligence (AI) as a learning resource brings convenience, especially in terms of accessibility, acceleration of obtaining information, and ease of use. Students feel helped because AI can be accessed anytime and anywhere as long as there is an adequate internet connection. This speeds up the process of searching for information and completing academic assignments because AI can provide answers instantly without going through a time-consuming manual search process.

This finding is in line with research conducted by (Zakiyah et al., 2024) which states that AI is very supportive in the learning process, one of the main advantages felt is the ease of getting information directly. AI helps students to access various sources of information quickly and relevant to the topics they are studying, including completing academic assignments, conducting research, and understanding lecture materials.

In addition, the results of this study also revealed that AI is considered easy to use by students and does not cause significant technical obstacles. This convenience also encourages the frequency of AI use in daily learning activities. In this case, the findings are reinforced by research from (Maola et al., 2024) which highlights that one of the main attractions of AI in the context of higher education is its user-friendly interface, adaptive to various learner needs, and its fast access makes AI accessible anytime and anywhere.

However, the ease and speed offered by AI do not necessarily guarantee the achievement of learning goals to the maximum. This study shows that some students feel that AI is not yet able to fully meet their learning needs, especially in providing in-depth information and verifiable references. In some cases, the information provided by AI is too general, lacks detail, and is accompanied by invalid or inaccessible references.

This is also confirmed by other research, according to (Hidayah Putri & Maharani, 2023) AI in learning still faces challenges in understanding individual differences in students, so it often provides information that is too general and not in-depth. AI is also not yet fully able to recognize individual learning patterns and characteristics accurately, so that personalization of learning is still limited. Another study in the International Journal of Research Publication and Reviews confirmed that AI has limitations in understanding context, creativity, and is unable to provide a fully personalized learning experience. AI is also considered unable to replace the role of teachers in providing in-depth explanations and academically verifiable references (Shwetha, 2025).

Furthermore, the limitations of AI in supporting the achievement of learning objectives were also highlighted by (Zawacki-Richter et al., 2019) who emphasized the importance of combining the use of AI with other learning resources such as textbooks, scientific journals, and discussions with lecturers or peers. This is necessary so that students not only obtain information but are also able to build a deep and critical conceptual understanding of the material being studied.

Thus, it can be concluded that AI brings significant benefits in terms of ease and speed of access to information, but it still cannot completely replace the role of other learning resources in supporting the achievement of optimal academic goals. The use of AI in learning needs to be balanced with information literacy skills and a critical attitude towards the validity and depth of the material obtained. This means that AI must be positioned as a support tool in the learning process, not as the only source of information or knowledge.

Artificial Intelligence (AI) does offer extraordinary ease and speed in accessing information, but to achieve optimal academic goals, its use must be accompanied by good information literacy and a critical attitude from the user. AI should not be used as the only reference in the learning process, given its limitations in presenting in-depth, contextual, and academically verified information. Students need to have the ability to assess the quality of information provided by AI, compare it with other sources such as textbooks, scientific journals, or academic discussion results, and carry out independent verification before using the information for academic purposes.

Therefore, the role of AI should be understood as a support tool or aid that can accelerate the initial exploration process, not as a substitute for learning resources that are richer in validity and depth (Zawacki-Richter et al., 2019) emphasizes that AI can support learning if used as a complement to other learning resources and integrated into the right pedagogical approach. In addition, digital literacy and critical evaluation of information are key skills that must be developed so that the use of AI in education is not only efficient but also responsible and oriented towards academic quality.

PAI Students' Perceptions of the Efficiency of Using Artificial Intelligence as a Learning Resource in the Digital Era at UIN SU

Efficiency is a way to achieve a goal with minimal use of resources but maximum results. Resources are managed wisely and economically so that money, time, and energy are not wasted (Indrasari & Kartini, 2021). The results of the study showed that students viewed the use of AI as providing high efficiency when making it a learning resource. Because AI has fast access to obtain information, saving time and costs. AI has been proven to be able to provide information and learning materials instantly, so that users no longer need to go through the manual search process in books or journals, which takes time. AI's ability to provide quick answers to questions, design learning patterns, and simplify complex material makes it a very practical tool in academic activities.

This finding is in line with research conducted by (Maola et al., 2024) which states that the use of Artificial Intelligence as a learning resource is very efficient, because AI has fast access that can provide all information easily and users can access it anytime and anywhere. AI is also very time-saving in its use, as stated in a systematic study that analyzed 25 studies found that the use of AI in the literature review process can save more than 50% of time in 17 studies reviewed. Some AI tools are even capable of cutting review time by up to 99%, for example, the time required to review an abstract can drop from 60 seconds (manually) to just 7 seconds with AI (Abogunrin et al., 2025).

In terms of cost, the results of the study show that students view the use of AI in the learning process as very cost-effective because many AI services are available for free or at affordable prices, reducing the need for students to buy physical books or access paid references. This strengthens the view that AI technology can democratize access to education by providing quality information at low cost (Aulia, 2024).

However, although AI offers efficiency in various aspects, students also understand that AI is not the only source that can be absolutely relied on. Some students remain critical of the information provided by AI, realizing that there are limitations in terms of the depth of the material, accuracy, and validity of the

references used. This finding is reinforced by (Zawacki-Richter et al., 2019) which reveals that AI still has limitations in presenting academic information in depth and scientifically, especially in the context of data validation and credible academic sources.

Therefore, the position of AI in learning is better understood as an aid or support tool, not as the sole reference. The efficiency offered by AI should be utilized to support a more productive learning process, not replace the process of critical thinking and in-depth literature exploration. Students' awareness of this reflects a wise and adaptive attitude in facing the development of educational technology.

PAI Students' Perceptions of the Ethics of Using Artificial Intelligence as a Learning Resource in the Digital Era at UIN SU

Ethics relate to human attitudes and behavior, whether these attitudes should or should not be carried out by humans in their daily lives (Jamil, 2022). The results of this study indicate that students' ethics in using Artificial Intelligence (AI) as a learning resource are not yet entirely good, although they show a positive direction and growing ethical awareness. This can be seen from the existence of unethical practices that are still carried out by some students, such as copying answers from AI raw (copy and paste) without adequate understanding, and excessive dependence on AI in completing academic assignments.

These practices cause a number of problems, ranging from a decline in critical thinking skills, the emergence of a lazy attitude in digging up information from other sources, to an increased risk of plagiarism and data manipulation that damages the value of academic honesty. This situation is exacerbated when students are in urgent conditions that encourage them to take shortcuts without considering academic ethics.

This finding is in line with the research of Firdaus et al (2025), which states that AI can increase learning independence through learning personalization, but AI also risks causing plagiarism, laziness, and decreased critical thinking skills due to dependence on instant solutions. Although effective, its use must be balanced with an approach that encourages the development of analytical skills and academic ethics.

In Harmilawati's research, Harmilawati et al., (2024) it also states that the use of AI in education has negative impacts. First, excessive dependence on technology can cause students to lose their ability to think independently and critically. Second, the information presented by AI is not always accurate or reliable, which can mislead students if not managed properly. Third, excessive use of AI can reduce social interaction between students, which is important for the development of their

social and emotional skills. Finally, there are concerns about the privacy of data managed by AI, which must be taken seriously.

Thus, although there are still unethical practices carried out by students in using AI. On the other hand, students are starting to realize the importance of using AI responsibly. They do not immediately accept information from AI, but try to understand its contents first, check its validity, and rewrite it with their own understanding and language. In the context of higher education, this is very important because academic integrity must be maintained as a main pillar in the teaching and learning process.

To prevent the copy-paste practice that is still often done by students in using AI, targeted contributions are needed through strengthening digital literacy and academic integrity from an early age. Universities must actively integrate digital ethics education into the curriculum, especially in courses that directly relate to information technology or academic writing. Students need to be equipped with a deep understanding of the importance of originality of work, how to cite correctly, and the risks of academic consequences from plagiarism, both intentional and unintentional.

In addition, lecturers should change the approach to assignments to be more process-based and critical thinking, rather than just results, thus encouraging students to understand, analyze, and synthesize information rather than copying it. According to (Kasneci et al., 2023) the use of AI in education requires a strong ethical and evaluative understanding, because AI can be an effective tool only if accompanied by reflective skills and moral responsibility from the user. Thus, strengthening an academic culture that values the learning process, honesty, and information skills will be the main foundation in building a generation of students who can use AI intelligently and ethically.

From an educational perspective, the use of Artificial Intelligence as a learning resource in the digital era requires a comprehensive understanding of four main aspects: accuracy, ease, efficiency, and ethics of use. Accuracy is an important foundation because the academic world demands accurate, relevant, and verifiable information. Without accuracy, the use of AI has the potential to mislead students in understanding the correct scientific concepts (Floridi & Chiriatti, 2020).

On the other hand, the ease of use of AI allows students from various technological backgrounds to access information quickly and flexibly, making AI an inclusive tool in the learning process (Zakiyah et al., 2024). This convenience directly contributes to efficiency because AI can save time and costs in accessing literature, understanding materials, and completing academic tasks practically and instantly. However, this technological advancement must be balanced with ethical awareness in its use. Ethics play an important role in maintaining academic

integrity, preventing plagiarism, and forming the character of independent and responsible learners (Harmilawati et al., 2024).

Therefore, the four subtopics are interrelated and form a holistic framework for utilizing AI as a learning resource in the digital era. Accuracy of information is the basis of trust, ease of use increases accessibility, efficiency supports resource optimization, and ethics maintains the integrity and quality of learning. From the perspective of education, AI should be positioned as a tool that enriches the learning process, not as a substitute for traditional learning resources or the role of lecturers. Effective AI integration requires a balance between technology, information literacy, critical attitudes, and ethical values so that higher education goals can be achieved optimally and sustainably (Kodir, 2025).

To strengthen the results of the analysis of student perceptions regarding the use of Artificial Intelligence as a learning resource in the digital era, a co-occurrence analysis was conducted using ATLAS.ti software. This analysis aims to see the relationship or relationship between categories (codes) that have been created based on findings from interview data with 20 respondents. *This co-occurrence table allows researchers to see the extent to which two themes appear simultaneously in the same context. This is very useful for capturing thematic relationships, whether they are supportive, contradictory, or strengthening an argument or data tendency. The following is the researcher's display of the Co-occurrence results from several codes that the researcher has listed.*

	25	51	23	20	20	23	45	20	22	68	51	22	70
Quick access to learning materials 25		5 (0.07)	1 (0.02)							1 (0.01)		3 (0.07)	
AI Accessibility 51	5 (0.07)		3 (0.04)	14 (0.25)	3 (0.04)					4 (0.03)			
Barriers to AI use 23	1 (0.02)	3 (0.04)		1 (0.02)					1 (0.02)	14 (0.18)			
Cost effective 20		14 (0.25)	1 (0.02)							6 (0.07)		2 (0.05)	
Save time 20		3 (0.04)								16 (0.22)			
AI information suitability 23							7 (0.11)						10 (0.12)
AI information accuracy 45						7 (0.11)				1 (0.01)		9 (0.16)	22 (0.24)
Dependence on AI 20									2 (0.05)	3 (0.04)	13 (0.22)		
The value of academic honesty 22			1 (0.02)					2 (0.05)		3 (0.03)	18 (0.33)		
Acceleration of obtaining information 68	1 (0.01)	4 (0.03)	14 (0.18)	6 (0.07)	16 (0.22)		1 (0.01)	3 (0.04)	3 (0.03)			5 (0.06)	
Plagiarism 51								13 (0.22)	18 (0.33)				20 (0.20)
Learning objectives achieved 22	3 (0.07)			2 (0.05)			9 (0.16)			5 (0.06)			5 (0.06)
AI information validation 70						10 (0.12)	22 (0.24)				20 (0.20)	5 (0.06)	

Figure 3. Co-occurrence Table

The image shown shows the co-occurrence table between codes, which contains 13 codes in the column codes and row codes. The results show that there are darker colors (eg, dark blue and dark green), indicating a stronger relationship between two themes, lighter colors (eg light blue and light green) indicating a weaker relationship, no color or blank indicates that two codes never appear in one data segment.

This co-occurrence analysis illustrates that students view AI as a useful, efficient, and accelerating learning tool, but at the same time, it holds potential risks to the accuracy of information and academic ethics. There is a tension between practical and moral values that arises from the use of AI in education. Therefore, a balanced approach is needed, namely by encouraging the maximum use of AI to support the learning process, while still instilling the values of critical thinking, intellectual independence, and academic honesty. AI cannot completely replace the role of humans in thinking and judging, but it can be an effective learning partner if used wisely and responsibly.

Conclusion

Based on the description of students' perceptions about the use of Artificial Intelligence as a learning resource in the digital era that researchers have presented in the previous section. The researcher can conclude that students realize that the information provided by Artificial Intelligence (AI) is not entirely accurate, so it cannot be accepted without verification. In terms of accuracy, suitability, and validation, students show a critical attitude towards the results of AI, which are often less in-depth, not contextual, and have minimal academic references. They tend to compare AI answers with other sources, such as books and journals, to ensure their accuracy, so that AI is positioned more as a learning tool, not as the main source.

However, students still feel the real benefits of using AI, especially in terms of accessibility, speed of obtaining information, and technical convenience. AI helps speed up the completion of tasks and is efficient in terms of time and cost because information can be obtained instantly without having to search for manual sources. However, the limitations of AI in presenting valid and in-depth information cause students not to fully rely on it to achieve learning goals, but to use it functionally while still involving other academic references.

In terms of ethical use, some students still demonstrate irresponsible practices, such as copying answers from AI without understanding, which risks reducing critical thinking and increasing plagiarism. However, ethical awareness is also growing among students who use AI wisely by understanding, verifying, and restructuring information in their own language. Therefore, the success of utilizing AI in learning is highly dependent on individual responsibility in using it proportionally, ethically, and reflectively.

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