JPB 11(2) (2024)

Jurnal Pembelajaran Biologi:
Kajian Biologi dan Pembelajarannya

https://jpb.ejournal.unsri.ac.id/index.php/jpb/index

The Difference in AI (*Artificial Intelligence*) Literacy Levels Between Science Students and Non-Science Students

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Article History:
Received: 07.10.2024
Accepted: 25.11.2024
Published:04.12.2024

Kata kunci:
Literasi, Kecerdasan Buatan, Mahasiswa

Abstrak: This study aims to examine the difference in AI literacy between science and non-science students, specifically at IAIN Kerinci. Artificial intelligence has become a key element in the academic environment, and students must possess a high level of AI literacy to keep up with the rapid technological advancements. This research highlights the differences between individuals from two educational backgrounds. The research design used is descriptive quantitative research. The sample was selected using purposive sampling, consisting of 102 respondents from both science and non-science fields. Data collection was carried out by distributing an AI literacy questionnaire to students through Google Forms and printed media. Data were collected using an AI literacy instrument consisting of 31 items and analyzed using descriptive statistics and the Wilcoxon test via the JASP application. The analysis results show that the difference in AI literacy levels between science and non-science students falls into the low category, with an average mean score of 9.098. Therefore, the results indicate that there is no significant difference in AI literacy levels between students from science fields and students from non-science fields. The implication of this study is the need to improve AI literacy across all disciplines to prepare students for the workforce in a technology-driven world.

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Jurnal Ilmiah Terapan: 2355-7192
ISSN: 2613-9936

INTRODUCTION

The importance of digital technology in the world of education, including learning that heavily utilizes digital technology, is crucial in keeping up with the evolving times that are increasingly responsive to technology (Syairofi, 2024). One of the advantages of the digital era is that it makes tasks easier and meets human needs, and students can access up-to-date educational information (Salsabila et al., 2021). Education related to artificial intelligence can be seen as an effort to prepare students who will face the workforce in the digital era, which increasingly relies on automation. Various information that students wish to obtain can be accessed through digital media such as online computers, laptops, or smartphones, which are easily accessible to university students via the internet. However, the lack of knowledge about digital literacy among students becomes the main barrier to its application in higher education.(Mawarni et al., 2021) (Liansari & Nuroh, 2018).

This technology is also applied in the field of education, one of which is through the development of intelligent systems. An intelligent system is a control system that mimics human intelligence and utilizes artificial intelligence (Syahira et al., 2023). Artificial intelligence (AI) has various definitions, namely, it is the effort to develop computers, robots, applications, or programs that can work intelligently and operate with intelligence similar to that of humans. AI can also be understood as the intellectual capability embedded in systems created by humans. AI *can also be defined as the intellectual ability embedded in systems created by humans* (Ida, 2023; V. A. Putri et al., 2023). Artificial Intelligence (AI) can also be defined as a discipline of science and engineering aimed at creating intelligent machines, which involves mechanisms to perform specific tasks using computers (Setiawan et al., 2023). Currently, Artificial Intelligence (AI) is an important issue in the field of education that attracts a lot of attention due to its potential in supporting learning and assessment systems. Advances in AI have the ability to significantly change the way we act and live our daily lives (Suwahyu et al., 2024). The use of AI as a learning medium has opened new opportunities to enrich

students' learning experiences and support the development of their cognitive skills. Cognitive skills that are crucial in the context of education include critical thinking and problem-solving abilities (Said, 2023).

The use of technologies such as artificial intelligence (AI) can also play a role in efforts to enhance digital literacy (M. Miftach Fakhri et al., 2024). One solution that can be implemented is to equip them with digital literacy so they can access digital information wisely. The main task of artificial intelligence is to create systems that can mimic the functions of the human brain and be operated by computers (Hamsar et al., 2024). Therefore, AI provides numerous benefits in various sectors, such as education, especially in university lectures. Today, education is highly dependent on information technology (Asnawati et al., 2023). Therefore, in terms of AI literacy, students need to understand how AI works and how it can be used wisely and applied to positive purposes (Haris et al., 2024).

Artificial intelligence is still not fully recognized by many students (Rahayu, 2023). Many students are unaware that artificial intelligence can have a positive impact. Students can benefit from using AI if it is used wisely. This ability not only makes it easier for students to access knowledge, but it can also help enhance their creativity in creating or completing tasks effectively and perfectly (Annas et al., 2024).

Digital literacy and AI literacy are interconnected as the implementation of continuous technological skills (Sugiarto & Farid, 2023). Digital literacy provides the foundation for accessing and using technology effectively, while AI literacy is an advanced application that involves understanding how algorithms and artificial intelligence work (V. A. Putri et al., 2023). In other words, AI literacy is the implementation of digital literacy, which enables individuals not only to use digital tools but also to understand and utilize advanced technology in a critical and wise manner.

Students must have good skills or literacy, especially science literacy. Literacy refers to a person's ability to engage in reading and writing activities (Hamsar et al., 2024). Future teachers who have good science literacy will be able to apply the appropriate teaching approaches or models, design questions, and create or develop evaluation instruments that can support the development of students' science literacy (Sumanik et al., 2021). Without literacy skills, a person will struggle to develop and face various difficulties due to limitations related to literacy (Hamsar et al., 2024). Awareness of the importance of AI literacy is still underutilized by some students. This is supported by previous research showing that the low literacy levels among students from various indices, such as gender, rural/urban residence, and others, also indicate that digital technology is not being used effectively by students in learning (Zacki et al., 2024)(R. Hidayat et al., 2023; Iskamto et al., 2024; Mursyidah & Muhammad, 2023; Trianie & Safitri, 2024).

The utilization of AI can be benefited by all students from various fields of study, both from science and non-science disciplines (Araf Aliwijaya & Hanny Chairany Suyono, 2023). Although they have different learning methods, science students are more focused on technical material involving experiments, data analysis, and the use of quantitative methods, with an emphasis on structured scientific concepts. On the other hand, non-science students, who come from fields such as social sciences, humanities, or arts, are more often involved in discussions, text analysis, and critical thinking about social and cultural issues (Asniar, 2016). Although their approaches are different, both groups can complement each other, especially in projects or research that require technical skills and social perspectives, leading to more holistic solutions.

By considering the aspects above, research on the level of AI literacy between science and non-science students can provide a better understanding of the role and impact of AI in education. Comparing science and non-science students in AI literacy is important to understand the differences in their learning approaches, allowing learning strategies to be tailored to their respective needs, whether focusing on technical aspects or practical AI applications. Thus, this research can offer guidance and recommendations for more effective and adaptive learning approaches, while also preparing students for an increasingly AI-connected era. This research is essential because higher education institutions need to understand the level of AI literacy among students, in line with previous studies (Agusnaya & Nirmala, 2024) where the level of AI literacy can influence students' academic performance in taking the necessary steps to facilitate the development of their AI literacy.

Based on the issues outlined, the researcher intends to discuss the level of AI literacy between science and non-science students at a higher education institution. This article will present several key findings related to artificial intelligence (AI) literacy among science and non-science students. The findings in this article are related to how literacy can contribute to student groups and how well students understand artificial intelligence.

METHODOLOGY

This research uses a quantitative method with a descriptive design. Quantitative descriptive research is a type of study aimed at systematically, factually, and accurately describing certain facts and characteristics (Harahap et al., 2020). The research was conducted at the campus of the State Islamic Institute (IAIN) Kerinci in April-May 2024, with the population consisting of students from the Faculty of Tarbiyah and Teacher Training at IAIN Kerinci. The aim was to assess the differences in AI literacy levels between science and non-science students. The sample was selected using purposive sampling, a method where the researcher chooses the sample based on specific criteria. The criteria were based on the objectives of this study, focusing on students, with a total sample of 102 respondents, consisting of 57 science students and 45 non-science students.

The instrument used in this research was a test. This test consists of 31 questions that measure the AI literacy level of both science and non-science students. Data were collected using an instrument containing

questions designed to assess the AI literacy level of students, developed by (Hornberger et al., 2023). The data collection technique in this research involved distributing an AI literacy questionnaire to students via Google Forms, with some also provided in printed form to be distributed to students. A total of 102 students from various study programs within the Faculty of FTIK at the State Islamic Institute of Kerinci participated in this study. The data were then analyzed using descriptive statistics and the Wilcoxon test, as this test is a non-parametric alternative suitable for ordinal or interval data that does not meet normality assumptions, especially when the data is not normally distributed or when there is a sample imbalance. Additionally, JASP software was used to examine the differences in AI literacy levels among students.

The research was conducted at the IAIN Kerinci campus. The significant demographic variable is the AI literacy level of students based on their field of study. Below is the data based on the demographic variable :

Table 1. Binomial Test

Variable	Level	Counts	Total	Proportion	P
Gender	Female	74	102	0,725	< ,001
	Male	28	102	0,275	< ,001
Field of study	Science	57	102	0,559	0,276
	Non-Science	45	102	0,441	0,276
Semester	2	22	102	0,216	< ,001
	4	40	102	0,392	0,037
	6	32	102	0,314	< ,001
	7	3	102	0,029	< ,001
	8	2	102	0,020	< ,001
	10	1	102	0,010	< ,001
	-	2	102	0,020	< ,001
Major in high school	IPA	68	102	0,667	< ,001
	IPS	12	102	0,118	< ,001
	Others	22	102	0,216	< ,001
Domicile	Rural	79	102	0,775	< ,001
	Urban	23	102	0,225	< ,001
Intensity of using AI AI	Always	11	102	0,108	< ,001
	Never	9	102	0,088	< ,001
	Frequently	55	102	0,539	0,488
	Rarely	27	102	0,265	< ,001

The table above shows that there are 28 male students and 74 female students, meaning that there are more female students participating in the study than male students. There are 57 students from the science field of study and 45 students from non-science fields. The distribution of students by semester is as follows: 22 students from semester 2, 40 students from semester 4, 32 students from semester 6, 3 students from semester 7, 2 students from semester 8, 1 student from semester 10, and 2 students from advanced semesters. There are 101 students with a IPK ≥ 3.50 and 1 student with a IPK ≤ 3.50, meaning that students with a IPK ≥ 3.50 are more dominan.

The background of students' high school majors shows that the majority are from the Science track (IPA), with 68 students, while 12 students are from the Social Studies track (IPS), and 22 respondents are from other majors. Students living in rural areas are more dominant, with 79 students, compared to 23 students residing in urban areas. In terms of AI usage intensity, there are 11 students who always use AI, 9 students who never use AI, 55 students who frequently use AI, and 27 students who rarely use AI.

There are several variables that influence an individual's AI literacy level, one of which is the individual's background, often referred to as their demographic variables. These demographic variables reflect the individual's background, which can affect their level of literacy in AI (Hodge, 2018). In this study, there is one significant variable, which is the AI literacy level of students based on their field of study, with a significance value of 0.276, which is greater than 0.05. This indicates that there is no significant difference in the AI literacy levels between the students.

RESULTS

Descriptive analysis

The table below presents a comprehensive descriptive analysis of 102 respondents to identify the categories of differences in AI literacy levels between science and non-science students.

Table 3. Average AI Literacy Scores of Students

	Valid	Missing	Mean	Std. Deviation	Minimum	Maximum
Skor	102	1	9,098	2,488	3,000	21,000

In this table, each question is rated by respondents within a specified range of values. For each question, the average (mean), median, minimum value, maximum value, and the number of responses are presented, reflecting the respondents' AI literacy level. In general, higher mean or median values typically indicate a better understanding or awareness of the aspects discussed in the question. The table above also presents a descriptive analysis of 102 valid data entries, with a mean of 9.098 and a standard deviation of 2.488, indicating that the difference in AI literacy levels between science and non-science students falls within the low category.

Difference in AI Literacy Between Science and Non-Science Students

W (Wilcoxon rank-sum test statistic) is used to assess the AI literacy levels of students in the T-test when the data does not meet the normality assumption.

Table 2. Difference in AI Literacy Levels Between Science and Non-Science Students

	W	df	P
Score	1007,000		0,061

Based on the table above, the obtained W value is 1007.000, and the p-value from this test is 0.061. In statistical terms, the p-value is used to determine whether there is a significant difference between the two groups being tested. The significance level (alpha) used is 0.05. The analysis results show a p-value of 0.061 > 0.05, which leads to the conclusion that there is no significant difference in AI literacy between students from the science and non-science fields.

So, this result means that there is no significant difference between the groups tested in this study because the p-value is greater than 0.05. This study does not provide enough evidence to suggest that the two groups being compared have a statistically meaningful difference. The additional sentence below the table, stating that "there is no significant difference, p > 0.05," also confirms this interpretation.

Artificial Intelligence can be used in all fields, encompassing all areas in higher education for both science and non-science students. Artificial Intelligence (AI) now plays a crucial role in human daily life, with its various applications being implemented in industries, business, healthcare, government, and other sectors (Haris et al., 2024).

AI Literacy Levels of Students Based on Gender

The table below presents the difference in AI literacy levels between male and female students. The data obtained is as follows.

Table 4. AI Literacy Levels of Students Based on Gender

	Score	
	Female	Male
Valid	74	28
Missing	0	0
Mean	9,230	8,750
Std. Deviation	2,594	2,188
Minimum	3,000	4,000
Maximum	21,000	14,000

Based on the descriptive analysis presented in Table 1, it can be seen that the AI literacy levels between female and male students show a difference, as reflected in the average scores obtained. Female students have an average score of 9.230, while male students have an average score of 8.750. This indicates that,

overall, female students tend to have a better understanding and awareness of artificial intelligence technology compared to male students, although the difference is relatively small. This disparity may be influenced by various factors, such as learning methods, interest in technology, or educational backgrounds that affect the level of understanding within each group.

These findings align with previous research, which shows that AI usage is quite common among female students from various high schools, with 44.0% of female respondents using it. The lower plagiarism rate (31.3%) among female students suggests that the use of AI is not directly associated with an increase in plagiarism among female students (Susilo & Widayanti, 2024). This means that female students have a higher level of AI literacy compared to male students.

AI Literacy Levels of Students Based on Their Field of Study

The table below presents the difference in AI literacy levels of students based on science and non-science fields. The data obtained is as follows.

Table 5. AI Literacy Levels of Students Based on Their Field of Study

	Score	
	Science	Non Science
Valid	57	45
Missing	0	0
Mean	9,544	8,533
Std. Deviation	2,653	2,160
Minimum	6,000	3,000
Maximum	21,000	13,000

Science and non-science students have different learning methods. Science students, such as those studying physics or biology, focus more on experiments and data, often working in laboratories to test theories. They use numbers and analysis to understand natural phenomena. Meanwhile, non-science students, who study fields such as literature or social sciences, spend more time analyzing texts and social contexts. They place greater emphasis on critical thinking and discussion to understand societal issues. Therefore, the main difference lies in the methods and types of material they study.

Students from the science field are more dominant than those from the non-science field, with 57 students from science and only 45 from non-science. The average (mean) score for science students is 9.544, while for non-science students, it is 8.533. The standard deviation for science students is 2.653, which is higher than the 2.160 for non-science students. It can be concluded that, in general, science students have a higher level of understanding and awareness of artificial intelligence technology compared to non-science students.

The AI literacy level of science students is generally higher than that of students from other fields because science curricula often include subjects such as mathematics, statistics, and programming, which are essential foundations for understanding AI. Additionally, science students are frequently involved in research that utilizes AI technology for data analysis and model development, making these skills more relevant and practiced within their academic context. On the other hand, students from non-science fields may not receive education or direct experience with AI tools and concepts, resulting in a lower level of literacy. With its wide-reaching applications, Artificial Intelligence (AI) can be implemented across various fields, including both science and non-science disciplines. (Arly et al., 2023).

AI Literacy Levels of Students Based on Semester

The table below presents the difference in AI literacy levels of students based on their semester. The data obtained is as follows.

Table 6. AI Literacy Levels of Students Based on Semester

	Score						
	2	4	6	7	8	10	-
Valid	22	40	32	3	2	1	2
Missing	0	0	0	0	0	0	0
Mean	8,409	8,775	10,219	8,000	8,500	9,000	7,500
Std. Deviation	2,576	1,847	3,013	1,000	2,121		0,707

Table 6. AI Literacy Levels of Students Based on Semester

	Score						
	2	4	6	7	8	10	-
Minimum	3,000	5,000	6,000	7,000	7,000	9,000	7,000
Maximum	13,000	12,000	21,000	9,000	10,000	9,000	8,000

Based on the table above, the levels of Artificial Intelligence (AI) literacy among students show varying differences based on their semester. Second-semester students, totaling 22, have an average score of 8.409, while fourth-semester students (40 students) have a slightly higher average of 8.775. A more significant increase is observed in sixth-semester students (32 students) with an average of 10.219, indicating a better understanding of AI as they progress in their studies. However, after the sixth semester, the average scores tend to decrease, with seventh-semester students (3 students) achieving an average of 8.000, and eighth-semester students (2 students) recording an average of 8.500. Tenth-semester students (1 student) scored an average of 9.000, while advanced-semester students (2 students) had an average of 7.500, although the small number of respondents in these groups may affect the results. The decline in scores in the later semesters may be related to variations in the curriculum, the courses taken, or limited exposure to AI technology during those semesters.

This indicates that some students show an interest in utilizing AI technology to enhance the efficiency and quality of seminar proposal preparation. It shows that the AI literacy level of final-semester students is higher compared to first-semester students. Final-semester students are more likely to use artificial intelligence in the creation of their final assignments, articles, or theses. Out of the total 45 students in the seventh semester, 15 of them have participated in a proposal seminar. Among them, 7 students decided to use AI, a chat-based artificial intelligence technology, to prepare their seminar proposals (V. V. Putri & Khasanah, 2023).

AI Literacy Levels of Students Based on High School Majors

The table below presents the difference in AI literacy levels of students based on their high school major. The data obtained is as follows.

Table 8. AI Literacy Levels of Students Based on High School Majors

	Score		
	IPA	IPS	Others
Valid	68	12	22
Missing	0	0	0
Mean	9,588	8,583	7,864
Std. Deviation	2,541	1,443	2,356
Minimum	6,000	6,000	3,000
Maximum	21,000	11,000	13,000

The level of Artificial Intelligence (AI) literacy among students based on their high school majors shows a significant difference, although this difference should be considered in light of the sample size disparities. Students from the science (IPA) major, totaling 68, have the highest average score, which is 9.588, while students from the social science (IPS) major (12 students) have an average of 8.583, and students from other majors (22 students) recorded an average of 7.864. Although the science major shows higher scores, this difference could be influenced by the imbalance in the number of students in each major, where the number of science students is much higher compared to social science or other majors. Additionally, science students may be more exposed to AI technology due to their greater focus on science and technology subjects. This more intensive exposure to technology could play a role in increasing their AI literacy scores, while students from other majors may have more limited exposure and access to AI usage in their learning processes.

Students from the science (IPA) major generally have higher AI literacy due to their educational background, which includes subjects like mathematics and computer science, providing a foundation for the technical understanding of AI. In contrast, students from the social science (IPS) major tend to focus more on the social impact and applications of AI within a societal context, rather than its technical aspects. This difference can also be observed in other majors, depending on the curriculum and the specific focus of their studies. There is a noticeable difference in AI literacy between students from the science (IPA) major, students from the social science (IPS) major, and students from other majors (Chen et al., 2020).

AI Literacy Levels of Students Based on Domicile

The table below presents the difference in AI literacy levels of students based on their domicile, whether rural or urban. The data obtained is as follows.

Table 9. AI Literacy Levels of Students Based on Domicile

	Score	
	Rural	Urban
Valid	79	23
Missing	0	0
Mean	9,177	8,826
Std. Deviation	2,615	2,015
Minimum	3,000	5,000
Maximum	21,000	13,000

The difference in AI literacy levels among students, particularly between urban and rural areas, is evident from various factors. In urban areas, students typically have better access to schools that offer technology programs and modern facilities to learn about artificial intelligence. They are also more likely to participate in seminars and training sessions that help them understand AI. On the other hand, students in rural areas often face challenges such as curriculums that do not include the latest technologies and a lack of support from local schools.

Students residing in rural areas dominate the sample, with 79 students, while only 23 students reside in urban areas. The average score (mean) for rural students is 9.177, while for urban students it is 8.826. The standard deviation for rural students is 2.615, which is higher than the standard deviation for urban students, which is 2.015. It can be concluded that students residing in rural areas have a higher level of AI literacy compared to those in urban areas.

The AI literacy level of students in rural areas may be higher because they often have to be more creative and independent in accessing and utilizing technology. The limited facilities and access to formal training motivate them to learn on their own and explore various technology applications, including AI, more intensively. They may be more exposed to the use of technology in practical contexts, such as smart farming, which hones their skills in this field. On the other hand, urban students, despite having greater access to resources and training, may be less motivated to explore independently due to the availability of more adequate facilities.

AI Literacy Levels of Students Based on Intensity of AI Usage

The table below presents the difference in AI literacy levels of students based on the intensity of AI usage. The data obtained is as follows.

Table 10. AI Literacy of Students Based on Intensity of AI Usage

	Score			
	Always	Never	Frequently	Rarely
Valid	11	9	55	27
Missing	0	0	0	0
Mean	9,636	7,333	9,364	8,926
Std. Deviation	1,912	2,915	2,724	1,796
Minimum	6,000	3,000	5,000	6,000
Maximum	13,000	11,000	21,000	13,000

Based on the table above, there are 5 categories for the intensity of AI usage: Always, Never, Often, and Rarely. The difference in AI literacy levels among students based on their intensity of AI usage shows a clear variation. Students in the "always" category, numbering 11, have the highest average score of 9.636, followed by students in the "often" category (55 students) with an average of 9.364. Meanwhile, students who use AI "rarely" (27 students) scored an average of 8.926, and those who "never" use AI (9 students) recorded the lowest average of 7.333. This difference suggests that the more frequently students use AI, the higher their literacy level of the technology. This could be due to greater exposure to AI technology, which enhances their understanding of its concepts and applications. Conversely, students who rarely or never use AI tend to have lower literacy levels.

The analysis indicates that with the majority of students (86.7%) already familiar with AI, educational institutions can capitalize on this level of awareness to enhance AI-related learning and research (Ali et al., 2023). This reveals that the level of awareness about AI among Indonesian academics has reached 91.25%. Of this group, 89% of students have heard of AI, and 57.5% have used it (Niyu et al., 2024). The majority

of students feel supported by AI, with 93.1% of respondents acknowledging that the tool aids their learning. Additionally, 69% of students report using AI frequently (Zacki et al., 2024), This indicates that the tool is effective in supporting their studies and can be utilized by students in academic fields.

The intensity of artificial intelligence (AI) usage can significantly impact AI literacy levels among students. The more frequently students engage with various AI applications—such as in research, data processing, or the use of AI-based learning tools—the higher their understanding of the concepts and applications of this technology. Intensive use of AI not only enhances technical skills but also fosters a critical attitude in analyzing the social and ethical impacts of the technology. Therefore, integrating AI into educational curricula and students' daily activities can accelerate AI literacy, making them better equipped to face the evolving challenges of the digital world.

CONCLUSIONS

Based on the research and data analysis conducted, it can be concluded that the difference in AI literacy levels between science and non-science students is categorized as low, with an average score (mean) of 9.098, as observed from several aspects. This finding indicates that there is no significant difference in AI literacy levels between students from science disciplines and those from non-science disciplines. One of the reasons for this is that many students from the Faculty of Tarbiyah and Teacher Training (FTIK) are already aware of the presence of AI and its role in the development of the digital era, and they are able to utilize artificial intelligence for learning and task completion.

Although many students are aware of the importance and presence of AI technology, their understanding of the concepts and applications of AI is still limited. This finding suggests that, while awareness of AI is growing, deeper mastery and understanding of AI need to be improved among students, both in science and non-science fields. The implication of this study is the need to enhance AI literacy across all disciplines in order to better prepare students for a workforce that is increasingly influenced by this technology.

REFERENSI

Agusnaya, N., & Nirmala, P. (2024). *Skala Literasi AI terhadap Prestasi Belajar Mahasiswa dalam Konteks Pendidikan Level Perguruan Tinggi di Era Digital*. *2*(2), 103–116.

Ali, N., Hayati, M., Faiza, R., Khaerah, A., & Raya, P. (2023). Artificial Intelligence (AI) dalam pendidikan Islam: trends, persepsi, dan potensi pelanggaran akademik di kalangan mahasiswa. *Injire*, *1*(1), 51–66. https://injire.org/index.php/journal/article/view/18

Annas, N. A., Wijayanto, G., Cahyono, D., & Safar, M. (2024). Pelatihan Teknis Penggunaan Aplikasi Artificial Intelligences (AI) Chat Gpt Dan Bard AI Sebagai Alat Bantu Bagi Mahasiswa Dalam Mengerjakan Tugas Perkuliahan. *Journal Of Human And Education (JAHE)*, *4*(1), 332–340. http://jahe.or.id/index.php/jahe/article/view/617

Araf Aliwijaya, & Hanny Chairany Suyono. (2023). Peluang Pemanfaatan Big Data di Perpustakaan. *Info Bibliotheca: Jurnal Perpustakaan Dan Ilmu Informasi*, *4*(2), 1–17. https://doi.org/10.24036/ib.v4i2.397

Arly, A., Dwi, N., & Andini, R. (2023). Implementasi Penggunaan Artificial Intelligence Dalam Proses Pembelajaran Mahasiswa Ilmu Komunikasi di Kelas A. *Prosiding Seminar Nasional*, 362–374.

Asnawati, A., Kanedi, I., Utami, F. H., Mirna, M., & Asmar, S. (2023). Pemanfaatan Literasi Digital Di Dunia Pendidikan Era 5.0. *Jurnal Dehasen Untuk Negeri*, *2*(1), 67–72. https://doi.org/10.37676/jdun.v2i1.3489

Asniar, A. (2016). Profil Penalaran Ilmiah Dan Kemampuan Berargumentasi Mahasiswa Sains Dan Non-Sains. *Jurnal Penelitian Dan Pembelajaran IPA*, *2*(1), 30. https://doi.org/10.30870/jppi.v2i1.428

Bakhtiar Siregar Dosen Program Studi Studi Sekretari, Y., Tinggi Ilmu Komunikasi dan Sekretari Tarakanita, S., & Timur, J. (n.d.). *Persepsi Literasi Digital Mahasiswa Perguruan Tinggi Swasta di Wilayah Jakarta*. 1–19.

Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. *IEEE Access*, *8*, 75264–75278. https://doi.org/10.1109/ACCESS.2020.2988510

Hamsar, I., Dewantara, H., Andini, H., Ardiansyah, S., Afrizah, N. A., Getri, M., Hasta, P., Kunci:, K., & Buatan, K. (2024). *Fundamental and Applied Management Journal Analisis Literasi Artifical Intelligence Mahasiswa Pada Perguruan Tinggi ARTICLE INFO ABSTRACT*. *2*(1), 72–81.

Harahap, A. C. P., Harahap, S. R., & Harahap, D. P. S. (2020). Gambaran Resiliensi Akademik Mahasiswa pada Masa Pandemi Covid-19. *Al-Irsyad*, *10*(2). https://doi.org/10.30829/al-irsyad.v10i2.8541

Haris, H., Arsyanda, A., Darwis, M. R., JY, M. R. W., & Ilham, M. (2024). Analisis Dampak Literasi AI terhadap Perubahan Norma Dan Etika. *Jupiter: Jurnal Pendidikan Terapan*, *02*(01), 66–77.

Hidayat, R., Utomo, W. T., & Rahmawati, Y. (2023). Analisis Kebutuhan Mata Kuliah Bahasa Indonesia Program Studi D-3 Perhotelan berdasarkan Outcome-Based Education. *Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, *13*(4), 272–284. https://doi.org/10.23887/jpbsi.v13i4.69839

Hodge, G. A. (2018). PENGARUH FAKTOR DEMOGRAFI TERHADAP LITERASI KEUANGAN. *Raja Ria Yusnita, Muhammad Abdi*, *66*, 163–184.

Hornberger, M., Bewersdorff, A., & Nerdel, C. (2023). *Komputer dan Pendidikan : Kecerdasan Buatan Apa yang mahasiswa ketahui tentang Kecerdasan Buatan ? Pengembangan dan validasi tes literasi AI*. *5*(September).

Ida, R. (2023). Research in Early Childhood ARTIFICIAL INTELLIGENCE DALAM PENDIDIKAN ANAK USIA DINI : *Research in Early Childhood Education and Parenting*, *4*(2), 91–96. https://ejournal.upi.edu/index.php/RECEP/article/view/64654

Iskamto, D., Hidayah, R. T., & Putri, R. K. (2024). Pelatihan Penggunaan Canva Poster & Kahoot! Pada MAS Al-Quran Qirotussab'ah Kudang Garut. *Jurnal Pengabdian Masyarakat Akademisi*, *3*(1), 27–32. https://doi.org/10.54099/jpma.v3i1.824

Liansari, V., & Nuroh, E. Z. (2018). Realitas Penerapan Literasi Digital bagi Mahasiswa FKIP Universitas Muhammadiyah Sidoarjo. *Proceedings of The ICECRS*, *1*(3), 241–252. https://doi.org/10.21070/picecrs.v1i3.1397

M. Miftach Fakhri, Dary Mochamad Rifqie, Asriadi, Asri Ismail, Andika Isma, & Della Fadhilatunisa. (2024). Peningkatan Literasi Digital dan Menulis Artikel Ilmiah Guru dengan Memanfaatkan Artificial Intelligence. *Jurnal Sipakatau: Inovasi Pengabdian Masyarakat*, *1*(2), 30–39. https://doi.org/10.61220/jsipakatau.v1i2.245

Mawarni, P., Milama, B., & Sholihat, R. N. (2021). Persepsi Calon Guru Kimia Mengenai Literasi Digital Sebagai Keterampilan Abad 21. *Jurnal Inovasi Pendidikan Kimia*, *15*(2), 2849–2863. https://doi.org/10.15294/jipk.v15i2.28394

Mursyidah, N., & Muhammad, M. (2023). Arah Baru Pembelajaran Pada Mahasiswa Di Era Society 5.0. *Jurnal Pembelajaran Dan Matematika Sigma (Jpms)*, *9*(1), 14–20. https://doi.org/10.36987/jpms.v9i1.3829

Niyu, Desideria Dwihadiah, Azalia Gerungan, & Herman Purba. (2024). Penggunaan ChatGPT di Kalangan Mahasiswa dan Dosen Perguruan Tinggi Indonesia. *CoverAge: Journal of Strategic Communication*, *14*(2), 130–145. https://doi.org/10.35814/coverage.v14i2.6058

Putri, V. A., Carissa, K., Sotyawardani, A., & Rafael, R. A. (2023). Peran Artificial Intelligence dalam Proses Pembelajaran Mahasiswa di Universitas Negeri Surabaya. *Prosiding Seminar Nasional*, 615–630.

Putri, V. V., & Khasanah, I. (2023). Perspektif Mahasiswa Pendidikan Matematika Unisma 2023 terhadap Penggunaan Artificial Intelligence Chat GPT dalam Penyusunan Seminar Proposal. *Pembelajaran, Riset, Dan Inovasi Matematika*, *1*(1), 20–20.

Rahayu, W. (2023). *Pemanfaatan AI (Artificial Intelligence)*. 105. https://e-prosiding.ideaspublishing.co.id/index.php/PIP/article/view/19

Said, S. (2023). Peran Tekonologi Sebagai Media Pembelajaran di Era Abad 21. *Jurnal PenKoMi : Kajian Pendidikan & Ekonomi.*, *6*(2), 194–202.

Salsabila, U. H., Ilmi, M. U., Aisyah, S., Nurfadila, N., & Saputra, R. (2021). Peran Teknologi Pendidikan dalam Meningkatkan Kualitas Pendidikan di Era Disrupsi. *Journal on Education*, *3*(01), 104–112. https://doi.org/10.31004/joe.v3i01.348

Setiawan, E., Putra, A. P., Almunfasir, M. S. F., & Prabu, R. A. (2023). Kecerdasan Buatan Pada Perpustakaan Sebagai Wajjah Baru Literasi: Kajian Pustaka. *Jurnal Artificial Inteligent Dan Sistem Penunjang Keputusan*, *1*(1), 92–99.

Sugiarto, & Farid, A. (2023). Literasi Digital Sebagai Jalan Penguatan Pendidikan Karakter Di Era Society 5.0. *Cetta: Jurnal Ilmu Pendidikan*, *6*(3), 580–597. https://doi.org/10.37329/cetta.v6i3.2603

Sumanik, N. B., Nurvitasari, E., & Siregar, L. F. (2021). Analysis of science literation Abilities profile prospective teachers of chemical education. *Quantum: Jurnal Inovasi Pendidikan Sains*, *12*(1), 22–32.

Susilo, B., & Widayanti, T. (2024). Kecerdasan Buatan : Plagiarisme dan Perilaku Mandiri Siswa Sekolah Menengah Atas Dalam Penggunaan ChatGPT. *SABER: Jurnal Teknik Informatika, Sains Dan Ilmu Komunikasi*, *2*(3), 341–352.

Suwahyu, I., Waratman, A. A., & Pratama, A. A. (2024). Analisis Literasi AI Mahasiswa Pada Perguruan Tinggi. *INTEC Journal: Information Technology Education Journal*, *3*(1), 81–85.

Syahira, S., Kartini, K., Sulistyahadi, S., & Prafiadi, S. (2023). Persepsi Mahasiswa Prodi Pendidikan Bahasa Inggris Tentang Penggunaan Ai Dalam Pengajaran Bahasa Inggris. *Jurnal Perspektif Pendidikan*, *17*(2), 263–269. https://doi.org/10.31540/jpp.v17i2.2630

Syairofi, A. (2024). *Pelatihan Penggunaan ChatGPT berbasis Kerangka Literasi AI untuk Meningkatkan Integritas Akademik Mahasiswa*. 165–182.

Trianie, S., & Safitri, E. (2024). *Inovasi Model Pembelajaran Literasi Digital Dengan Bantuan Kecerdasan Buatan (ARTIFICIAL INTELLIGENCE) Untuk Mewujudkan SDGs 2030*. *2*(3), 33–38.

Zacki, H., Wibowo, A., Widyatami, C. C., & Rahel, N. I. (2024). *Jurnal mediasi Implementasi AI ChatGPT Sebagai Alat Pendukung Pembelajaran Mahasiswa Pada Prodi Sistem Informasi di Perguruan Tinggi Yniversitas Negeri Semarang*. *3*(1), 106–118.