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The Relationship of AI Literacy and Academic Writing Skills: A Correlational Study of University Library and Information Science Students Padjadjaran

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ABSTRACT

The use of artificial intelligence (AI) in education is increasing and is influencing students' learning experiences, including in academic writing activities. This study aims to analyze the relationship between AI literacy and scientific writing skills, by highlighting the dimensions of basic understanding, function, use, ethics, and evaluation of AI. The method used is quantitative with a correlational approach . Data were collected through a questionnaire involving 74 Library and Information Science students from Padjadjaran University, class of 2023, selected using a simple random sampling technique based on the Slovin formula from a total population of 90 students. Data analysis used percentages, a continuous line of score interpretation, and *the Rank* correlation test. *Spearman* . The results showed a moderate and significant positive relationship between AI literacy and academic writing skills. All AI literacy sub-variables also had a moderate and significant positive relationship with academic writing skills, with the basic understanding of AI dimension having the highest correlation coefficient. The most frequently used AI tools were ChatGPT and Gemini. Students used AI tools to generate ideas, develop writing outlines, and improve grammar. The findings suggest that efforts to improve students' academic writing skills can be accompanied by AI literacy learning . However, the moderate or moderate correlation strength indicates the presence of other factors. This indicates the need for further research to examine the related topic in depth.

Keywords: AI Literacy , Academic Writing, Artificial Intelligence

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INTRODUCTION

Technological developments in the digital era have experienced rapid progress, one of which is marked by the presence of artificial intelligence (AI). AI is experiencing rapid development due to advances in computing technology, the abundance of available data, and increasingly sophisticated algorithms (Panggabean et al., 2025) . AI has penetrated and is widely used in various sectors, including education. The education sector is a primary sector for AI implementation due to its enormous potential to transform students' learning experiences. Based on survey results, educational and learning content is the AI content with the highest frequency of access in Indonesia (APJII, 2025) .

AI is widely used by students to support various academic needs, such as searching for references, summarizing material, and assisting in the process of preparing college assignments. The use of AI also helps students understand learning materials more easily (Herawati et al., 2024) . Furthermore, the use of AI in higher education also has a positive impact on student learning motivation (Ward et al., 2024) . One academic aspect most impacted by the use of AI in higher education is scientific writing. In this context, AI is used as an aid in writing outlines, selecting diction, paraphrasing, and finding reference sources.

Despite the various benefits and conveniences it offers, the use of AI also has the potential to bring several challenges, such as a decline in critical thinking skills. This aligns with Gerlich's (2025)

findings , which reported that students who frequently access AI tend to have lower critical thinking skills. AI also leads to a blurring of the line between fact and misinformation. (Walczak & Cellary , 2023) . Bit et al. (2024) stated that the negative impacts of AI use in the education system include risks of privacy and ethical issues, data bias, and over-reliance on technology. This situation shows that without proper understanding, the use of AI has the potential to reduce academic quality, create over-dependence, and increase the risk of academic ethics violations. Therefore, this emphasizes the importance of AI literacy in the educational environment.

A 2025 survey conducted by APJII showed that the AI literacy index of Indonesian society was still at 49.96%. Among university students, the level of AI literacy also still faces various challenges, such as limited understanding and less than optimal implementation of AI in the learning process (Mureşan , 2023) . AI literacy is not only related to technical skills in using AI, but also involves individual skills in utilizing and distributing AI-based content critically, ethically, and responsibly. In relation to academic writing skills, AI can support the process of developing ideas, compiling texts, and improving grammar (Chen et al. , 2025) . This finding is in line with Shi et al. (2025) who explained that AI literacy has a positive relationship with students' writing performance.

Several studies have examined the relationship between AI literacy and academic writing skills. Hossain et al. (2025) found that college students tend to have a high level of reliance on AI for translation and grammar correction. Kim et al. (2025) revealed that students with a good level of AI literacy tend to be able to create *prompts*. which is more descriptive and contextual, resulting in higher essay writing performance scores. In addition, Ou et al. (2024) also revealed that through learning about the use of AI, students gain a deeper understanding of the ethics of using AI, *prompt -writing techniques* , and awareness of *text. ownership* . This study has similarities with previous studies, namely the focus of the study that examines the relationship between AI literacy and academic writing skills. Meanwhile, the difference lies in the research object where the object of this study is students of the Library and Information Science Study Program, Faculty of Communication Sciences, Padjadjaran University . This study uses the AILIS 1.0 instrument *(Artificial Intelligence Literacy in Library and Information Science*) developed by Montesi et al. (2025) to measure the level of AI literacy in students and academic writing indicators by Yu (2025).

The increasingly widespread development and use of AI has required students to be wise and critical in using this technology. In the context of academic writing, the use of AI without adequate literacy support has the potential to reduce students' credibility and critical thinking skills. For Library and Information Science students preparing to become future information professionals, writing skills and AI literacy are crucial and must be positioned as a focus of attention. Therefore, this study was conducted to gain an empirical understanding of the relationship between AI literacy and academic writing skills. The results are expected to contribute to the development of AI literacy in higher education, particularly in the field of Library and Information Science.

METHODS

This study uses a quantitative method with a correlational approach . The quantitative method is a method based on the philosophy of positivism and is used to analyze a specific population or sample and then use statistical data analysis to test predetermined hypotheses (Amruddin, 2022) . Meanwhile , the correlational approach is an approach that aims to analyze the relationship between two or more variables without manipulating the variables used (Waruwu, 2023) . Meanwhile, the main data for this study was obtained through a questionnaire distributed to predetermined respondents. The questionnaire is a primary data source consisting of a series of questions and presented to respondents in written form (Ajayi, 2023) . This questionnaire contains statements regarding AI literacy referring to AILIS 1.0 and academic writing skills referring to indicators developed by Yu in 2025.

The population in this study was all students of the Library and Information Science Study Program, Padjadjaran University , class of 2023. The sampling technique in this study used *probability sampling* with the *simple random sampling method. Random sampling.* The sample size is obtained through the Slovin formula calculation with *sampling error.* of 5%. Based on this calculation, a sample of at least 74 respondents was obtained. The questionnaire was distributed via Google Forms .

Before distributing the questionnaire, validity and reliability tests were conducted on the instrument. An instrument is said to be valid if $_{\text{the calculated}}$ r is greater than $_{\text{the table}}$ r. (Martiningsih, 2022) . The validity test of this research was conducted using *the Pearson Productivity method. Moment* and the results showed that all questionnaire statements were valid with a $_{\text{calculated}}$ r value range of 0.367 – 0.734 and a $_{\text{calculated}}$ r of 0.325 (n = 37). Furthermore, an instrument is said to be reliable if *the Cronbach's a value is Alpha* greater than 0.7 (George & Mallery, 2003) . The reliability test in this study was conducted using *the Cronbach's method. Alpha* . The test results show that the AI literacy variable is in the very variable category with an *Alpha coefficient value of* of 0.812 and the academic writing skills variable falls into the reliable category with an *Alpha coefficient* of 0.783.

This study employed two data analysis techniques: descriptive statistical analysis and inferential statistical analysis. To facilitate the interpretation of tables in the descriptive statistical analysis, the authors used a continuum line as a reference for score interpretation criteria. Meanwhile, inferential statistical analysis was conducted using *rank correlation analysis. Spearman* . All calculations of this analysis use the IBM SPSS Statistics 25 application. Interpretation of the results of this correlation analysis refers to the strength of the relationship *table . of relationship)* from Guilford in Prijana & Yanto (2020) .

RESULTS AND DISCUSSION

Results

Figure 1. Gender Distributions of Respondents

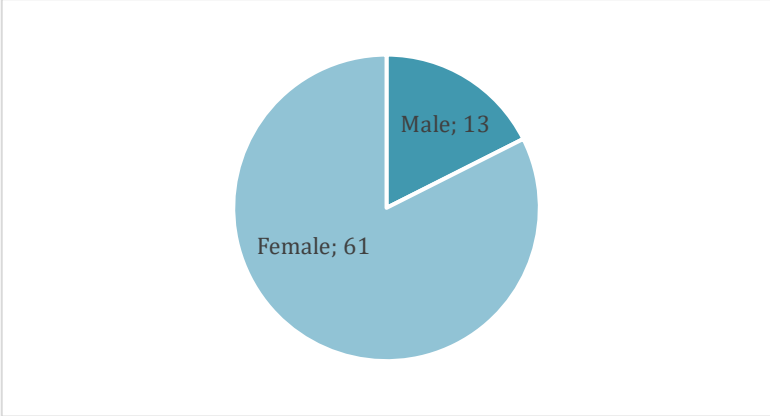


Figure 1 shows a total of 74 respondents, with a significant difference between the number of male and female respondents. There was no intentional bias in distributing the questionnaires, as this is consistent with field conditions, where there is a fairly visible comparison between the number of male and female students, namely a ratio of 1:5.

Figure 2. Frequency of Use of AI Tools for Academic Writing

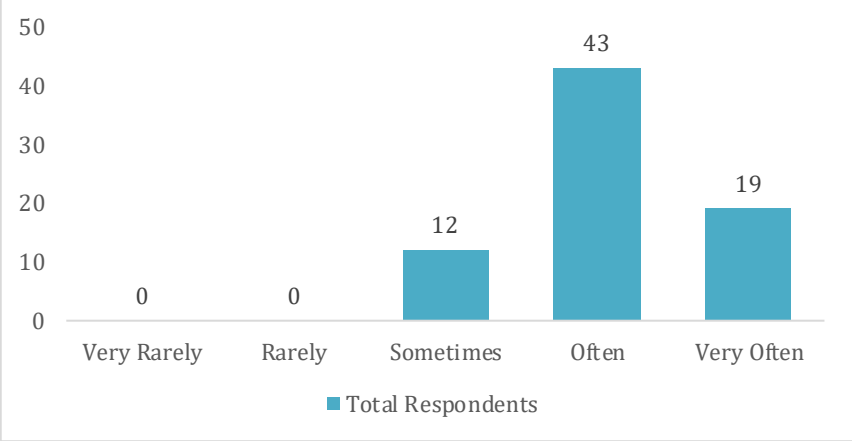
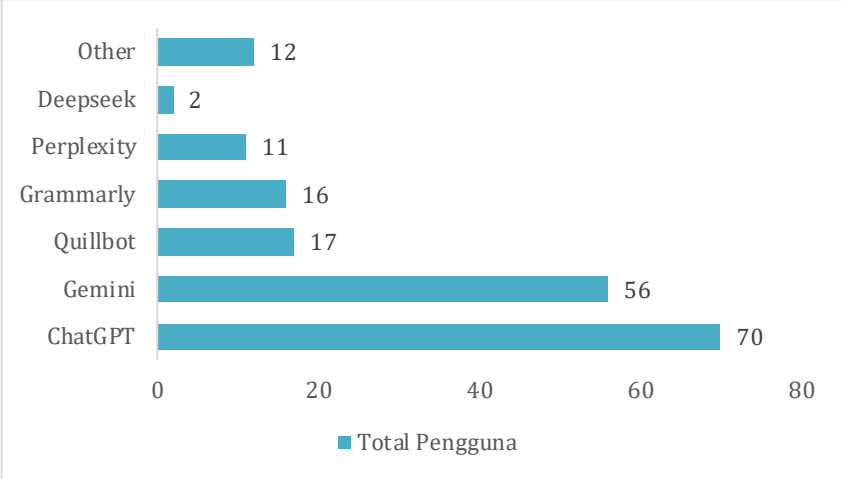


Figure 2. above shows that no respondents stated they rarely or very rarely use AI for academic writing purposes. This indicates that the 2023 intake of Library and Information Science students at Padjadjaran University have utilized and actively used AI as an academic writing tool.

Figure 3. AI Tools Used to Aid Academic Writing



The diagram above shows that the AI tools most commonly used by Padjadjaran University Library and Information Science students , class of 2023, as academic writing aids are ChatGPT (94.6%) and Gemini (75.7%). They also use AI tools such as Quillbot (23%), Grammarly (21.6%), Perplexity (14.9%), and Deepseek (2.7%). Additionally, 12 respondents (16.8%) use other AI tools, including Claude AI, SciSpace , Concensus , Turnitin , DeepL , and Paraphraser.io.

Figure 4. Purpose of Using AI in Academic Writing

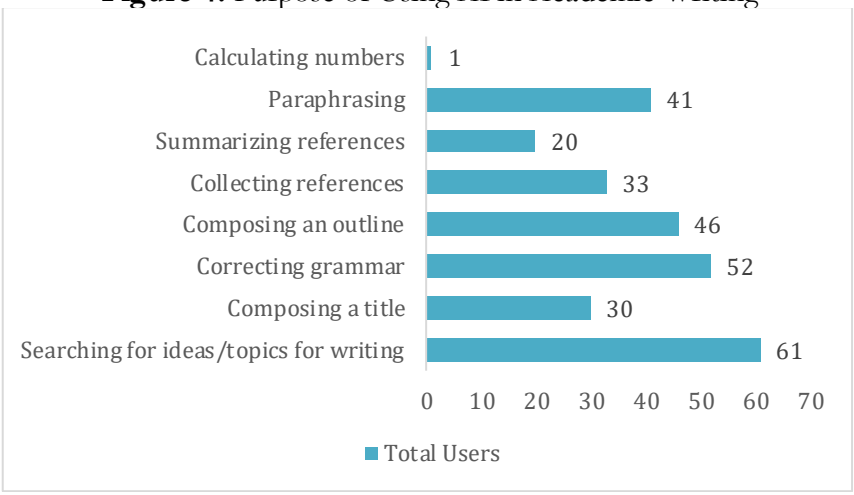


Table 5 shows that AI is most often used as a tool to help find ideas or topics for writing and improve grammar. Most respondents also said they use AI as a tool to help with writing outlines and paraphrasing.

Table 1. Frequency Distribution of AI Literacy Variables

	Answer Notation								
AI(X) Literacy	SS	S	N	T	STS	**Total Score**	**Ideal Score**	**Percentage (Total Score / Ideal Score) x 100%**	**Interpretation**
Basic Understanding of AI	104	143	45	4	0	1,235	1,480	83.44%	Good
AI Functional Capabilities	143	188	36	3	0	1,581	1,850	85.45%	Very good
AI Usage Capabilities	153	249	40	2	0	1,885	2,220	84.90%	Very good
Ethical Awareness of AI Use	227	223	56	11	1	2,218	2,590	85.63%	Very good
Evaluation of AI Usage	61	85	2	0	0	647	740	87.43%	Very good

Based on Table 1, it can be seen that the Library and Information Science students of Padjadjaran University, class of 2023, have a high level of AI literacy . This is evident from the percentage values for the five sub-variables, which are generally in the very good category. The basic understanding of AI sub-variable obtained a percentage of 83.44%, which falls into the good category.

This indicates that respondents have basic knowledge of AI concepts, the differences in interactions between humans and AI, and knowledge of basic methods of using AI to achieve certain results. The functional AI capability sub-variable showed a percentage value of 85.45% and is included in the very good category. This indicates that respondents are quite capable of understanding how AI interprets input data . by users, the potential for data bias, and basic concepts of data literacy .

The AI use capability sub-variable scored 84.90% and is in the very good category. This indicates that respondents not only understand the theory but also the technical aspects of AI use. They understand how to use AI results, integrate AI with other technologies, interpret data, and understand that AI results have limitations. Furthermore, the ethical awareness sub-variable scored 85.63% and is in the very good category. This indicates that respondents are aware of ethical aspects when using AI, such as considering social implications, identifying ethical and privacy issues, and being aware of environmental issues related to AI use. The sub-variable with the highest score was evaluation, with a score of 87.43% and is in the very good category. This indicates that respondents have good abilities in assessing the reliability and critiquing AI-generated results.

Table 2. Frequency Distribution of Academic Writing Skills Variables

Academic Writing Skills (Y)	Answer Notation					Total Score	Ideal Score	Percentage (Total Score / Ideal Score) x 100%	Interpretation
	SS	S	N	T	STS				
Academic Writing Skills	192	461	143	17	1	3,268	4,070	80.29%	Good

Table 2 shows that the academic writing skills of the 2023 Library and Information Science students of Padjadjaran University are in the good category, with a percentage score of 80.29%. This indicates that they have sufficient skills in developing writing plans, drafting, and making revisions. However, this percentage is still in the good category, indicating that there is still room for improvement in maximizing academic writing skills.

Table 3. Hypothesis Test Results

Rank Correlation Test *Spearman*	Sig . (2-tailed)	Correlation Coefficient	The Power of Relationships	Decision	Conclusion
Basic Understanding of AI (X1) – Academic Writing Skills (Y)	0,000	0.567	Moderate	H1 accepted	Significant relationship
AI Functional Ability (X2) – Academic Writing Skills (Y)	0,000	0.475	Moderate	H1 accepted	Significant relationship
AI Usage Ability (X3) – Academic Writing Skills (Y)	0,000	0.516	Moderate	H1 accepted	Significant relationship
Ethical Awareness of AI Use (X4) – Academic Writing Skills (Y)	0,000	0.553	Moderate	H1 accepted	Significant relationship
AI Result Evaluation Ability (X5) – Academic Writing Skills (Y)	0,000	0.508	Moderate	H1 accepted	Significant relationship
Literacy (X) – Academic Writing Skills (Y)	0,000	0.639	Moderate	H1 accepted	Significant relationship

Based on the results of the hypothesis testing contained in Table 3, the following conclusions can be drawn:

1. Basic understanding of AI has a moderately significant relationship with academic writing skills. This is because the significance value (α) obtained was 0.000, which is less than 0.05. Meanwhile, the correlation coefficient obtained was 0.567, thus accepting H1.
2. AI functional ability has a moderately significant relationship with academic writing skills. This is because the significance value (α) obtained was 0.000, which is less than 0.05. Meanwhile, the correlation coefficient obtained was 0.475, thus accepting H1.
3. AI use ability has a moderately significant relationship with academic writing skills. This is because the significance value (α) obtained was 0.000, which is less than 0.05. Meanwhile, the correlation coefficient obtained was 0.516, thus accepting H1.
4. Ethical awareness of AI use has a moderately significant relationship with academic writing skills. This is because the significance value (α) obtained was 0.000, which is less than 0.05. Meanwhile, the correlation coefficient obtained was 0.553, thus accepting H1.

5. The ability to evaluate AI results has a moderately significant relationship with academic writing skills. This is because the significance value (α) obtained was 0.000, which is less than 0.05. Meanwhile, the correlation coefficient obtained was 0.508, thus accepting H1.
6. literacy has a moderately significant relationship with academic writing skills. This is because the significance value (α) obtained was 0.000, which is less than 0.05. Meanwhile, the correlation coefficient obtained was 0.639, thus accepting H1.

Discussion

This study found a moderate relationship between AI literacy and academic writing skills, with a correlation coefficient of 0.639. This finding indicates that students with high levels of AI literacy tend to have good abilities in organizing ideas, developing writing frameworks supported by arguments and data, and writing structured paragraphs. Furthermore, high levels of AI literacy and academic writing skills among students also indicate that they utilize AI technology effectively in academic contexts.

These findings are consistent with research conducted by Gabayno et al. (2025) , which found that AI literacy has a significant relationship with academic writing skills. Chyne et al. (2024) in their study stated that AI literacy has a positive effect on the quality of academic writing. Similar findings were also obtained from research by Sangadji et al. (2025) , which found that students with high levels of AI literacy tend to show positive attitudes towards AI adoption and are able to integrate it into academic writing contexts.

The test results show that the relationship between basic understanding of AI and academic writing skills has the highest correlation coefficient value. This indicates that it is important for students to have a strong foundation in understanding the use of AI in the context of academic writing. The findings indicate a moderate relationship between AI functional ability and academic writing skills. Students with this ability tend to be more effective in utilizing AI, for example by developing clearer and more focused *prompts so that the output is more effective*. The results are relevant to the topic of the writing. This is in line with research by Kim, Yu, et al. (2025) which explains that students with high levels of AI literacy tend to have *prompt patterns*. which is more descriptive and appropriate to the writing context.

This study found a moderate relationship between the ability to understand how to use AI and academic writing skills. Students who understand how to use AI are more likely to be able to utilize the technology optimally to support the academic writing process. The research data shows that all students have used AI to assist with academic writing. This finding is consistent with research by Hiền (2025) , who reported that students with high levels of AI literacy tend to use AI more frequently in their academic writing.

The research findings reveal a moderate positive relationship between AI literacy and academic writing skills. In this regard, students are required not only to possess technical skills but also to have a deep understanding of the ethics of using AI in the context of academic writing. These findings indicate that students are aware of potential issues in academic writing, such as data bias and plagiarism. This finding aligns with the findings of Ou et al. (2024) , who found that students with high levels of AI literacy tend to think critically about ethical issues in scientific writing.

The test results indicate a moderate relationship between the ability to evaluate AI results and academic writing skills. These findings align with those of Kim, Yu, et al., (2025) , who revealed that students with high levels of AI literacy also evaluate the structure of their writing. Students who are able to filter and evaluate the appropriateness of AI results tend to be more careful in using the information they obtain. This results in their writing having a coherent structure and conforming to writing rules.

CONCLUSION

This study aims to determine the relationship between AI literacy and academic writing skills. Based on the research results and hypothesis testing that have been conducted, it can be concluded that AI literacy has a moderate and significant positive relationship with academic writing skills. The sub-variable of basic understanding of AI has a moderate and significant positive relationship with

academic writing skills. The sub-variable of AI functional ability has a moderate and significant positive relationship with academic writing skills. The sub-variable of AI usage ability has a moderate and significant positive relationship with academic writing skills. The sub-variable of AI ethical awareness has a moderate and significant positive relationship with academic writing skills. The sub-variable of AI evaluation ability has a moderate and significant positive relationship with academic writing skills. These relationships indicate that efforts to improve students' academic writing skills can be accompanied by AI literacy learning . However, the strength of the correlation, which is still in the moderate category, indicates that there are still other factors that play a role in the context of academic writing in students. Therefore, further research is needed to examine the related topics in depth.

This study still has several limitations that need to be considered. First, the relatively small sample size limits the generalizability of the results, so further research is recommended to involve a wider population. Second, the use of a *self-assessment- based questionnaire* This could potentially lead to bias in the data. Therefore, future research could consider additional research instruments, such as observation and in-depth interviews. Third, although a positive relationship was found between AI literacy and scientific writing skills, the results regarding the causal relationship remain inconclusive. Therefore, future research needs to further examine the direction of influence between related variables.

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