



The Uses of Artificial Intelligence and Academic Ethics Awareness on The Learning Performance: Digital Literacy Abilities as Mediation Variable

Aulia Putri Setiowati^a, Fitriana Rahmawati^b

^{a,b} Universitas Negeri Surabaya, Surabaya, Indonesia

ARTICLE INFO

ABSTRACT:

Keywords:

Artificial Intelligence, Academic
Ethic Awareness, Digital Literacy
Abilities, Learning Performance,
PLSSEM

Article History:

Received July 29, 2025
Revised August 19, 2025
Accepted August 23, 2025
Available online August 29, 2025

Correspondence:

Office administration education
students, Office administration
education, Faculty of Economics
and Business, Surabaya State
University, Indonesia

This study is based on the phenomenon of increasingly sophisticated technological developments in the era of education 4.0 which is able to help users in facilitating a better learning process. The sophisticated technology referred to in this study is the integration of the use of Artificial Intelligence (AI) in the learning process. This quantitative research with the Path Analysis model aims to determine the effect of the Use of AI and Academic Ethics Awareness on Learning Performance through Digital Literacy Skills. The Planned Behavioral Theory in this study explains how someone can achieve the desired behavior based on three important factors. The respondents in this study were students of the 2021-2024 Office Administration Education Study Program, Surabaya State University. Data testing using PLS-SEM. The results of the study showed that there was an influence between the Use of AI on Digital Literacy Skills, Academic Ethics Awareness had an effect on Digital Literacy Skills, Digital Literacy Skills had an effect on Learning Performance, the Use of AI had an effect on Learning Performance, Academic Ethics Awareness had an effect on Learning Performance, the Use of AI had an effect on Learning Performance through Digital Literacy Skills and Academic Ethics Awareness had an effect.

This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



INTRODUCTION

The rapidly developing industrial revolution 4.0 has had a major impact on various aspects of life, especially in the field of technology. Currently, the role of technology is very large in supporting the sustainability of daily human activities. With the help of technology, human activities become more effective and efficient. In addition, many people use internet-

based technology to support various activities. This is evidenced by the results of a survey from the Indonesian Internet Service Providers Association (APJII) stating that the percentage of the population of Indonesia in 2024 who use internetbased technology will reach 79.5%. This data shows the high level of public interest in using internetbased technology. The development of internet-based technology that continues to increase is able to present various new innovations in this field (Zahra Salsabilla et al., 2023). One of the internet-based technological innovations that is currently being widely discussed among the public is Artificial Intelligence.

Artificial Intelligence is the ability of machines connected to various data and information that resembles human capabilities and intelligence (Michael Reskiantio Pabubung, 2021). Artificial Intelligence has brought about major changes to the education sector, so that AI technology is now progressing rapidly and showing significant developments in education activities (Yuni Mustika et al., 2024). The use of AI in education activities is one of the means of realizing educational goals in the college environment, including at the State University of Surabaya. The use of AI can be integrated into learning activities for students of Office Administration Education, State University of Surabaya. This is in line with the Book "Guide to Using GenAI in Learning in Higher Education" published by the Ministry of Education and Culture (Direktorat et al., 2024), that students can use AI to support an effective and efficient learning process.

Several journals state that students' understanding of the use of AI needs to be improved. 29% of respondents indicated that students' understanding of the use of AI is still limited, so support is needed in understanding the basic concepts of using AI (Putri et al., 2023). There are 30% of student respondents who do not understand the existence, limitations, threats, challenges and functions of Artificial Intelligence (AI) technology in the learning process (Rizki et al., 2024).

Based on the results of this study, the use of AI must be accompanied by good student knowledge of AI to facilitate the use of AI. Based on the results of pra interviews with students of the Office Administration Education study program in the 2021 to 2024 intake, 15 students stated that they had known and used Artificial Intelligence (AI) technology. The results showed that students utilized an AI platform that focused on questions and answers, either in the form of text or images, four of which used a type of AI that required file or document input. The students said that the use of AI could help them find information or materials and help complete their college assignments. However, students stated that there were several obstacles experienced in using AI, such as the information provided was more focused on points, the

language was too formal, lack of valid references or sources, information was not always relevant to what was expected, so that students often had difficulty finding accurate information that was relevant to their learning needs. need to broaden their understanding of AI technology. In addition, some students do not understand the challenges and limitations when using the technology. There are students who do not realize the important role of ethics in using AI. Some students do not recheck the information they obtain, so they do not paraphrase and refer to plagiarism. Therefore, it is necessary to increase students' awareness of the importance of ethics. The use of AI is important to be accompanied by good knowledge of AI because it provides a good contribution in supporting the learning process, one of which is to help complete assignments (Rizki et al., 2024).

In its application, AI has various benefits and great potential to support the success of the student learning process. However, AI technology also presents serious challenges and concerns regarding ethical awareness in its use. Researchers (Luthfiah et al., 2024), in their research stated that the use of AI can pose threats and several problems related to academic ethics such as plagiarism, reduced critical thinking skills, low analytical skills and validity of information. Further research states that academic ethical awareness in the use of AI is still an under-researched area, students are often unaware of the ethical implications of using AI in their learning process (Luthfiah et al., 2024). The results of interviews with Office Administration Education students also show that some students still do not apply ethics in using AI. Some of these students in searching for information through AI technology sometimes do not include reference sources, do not review the information first and do not paraphrase (rewrite in their own language). Upholding ethical attitudes in the use of AI is very important to avoid problems that have the potential to harm oneself or others. Academic ethics are principles or moral values that must be adhered to in all academic aspects that are based on honesty, truth, exogeneity and wisdom (Suryani et al., 2023).

On the other hand, digital literacy skills can help students use technology and overcome academic ethics problems (Zulfikhar et al., 2024). Digital literacy is one of the digital information processing skills that students must have (Muasyaroh & Royanto, 2021). Subsequent research also stated that digital literacy is a skill that individuals must have to optimize the benefits of digital resources (AI) (Rini et al., 2022). Therefore, digital literacy is a very important skill in supporting the learning process in this digitalization era. Digital literacy is an individual's ability to utilize information and communication technology through digital media to access, manage, communicate, and evaluate information effectively (Mulyadi

& Afriansyah, 2022). Digital literacy skills are very important for students in analyzing and identifying the quality of information generated by artificial intelligence (AI) (Mulyadi & Afriansyah, 2022). By digital literacy skills, students can hone and improve their critical thinking skills in the learning process. In addition, digital literacy skills can avoid academic problems such as lack of ethics implementation. There are four pillars of digital literacy that have been launched by Kominfo, namely Digital Skills, Digital Ethics, Digital Safety and Digital Culture (Mulyadi & Afriansyah, 2022).

The Office Administration Education Undergraduate Study Program, State University of Surabaya has the main objective to form students who have good knowledge and skills in the field of Office Administration Education and Science (PAP Unesa, 2025). Students are given the opportunity to study various courses that can help improve their understanding of matters related to the field of Office Administration. One of the courses that is the basis for building students' understanding of office administration is Introduction to Administration and Management Science (PIAM). In this course, students will learn about the basic concepts of administration and management that cover planning, organizing, directing, controlling, supervising and managing resources in the office context. Students are given the opportunity to explore PIAM material through the use of internet-based technology. Students can utilize AI technology to explore and understand the material more broadly and deeply. Students can achieve good learning outcomes by integrating the use of AI technology, learning ethics and digital literacy in a more effective and efficient learning process. This is in line with the results of research (Yassir & Saharuna, 2024), which shows that the use of AI can provide significant benefits in improving learning outcomes.

METHOD

This research is included in quantitative research. Quantitative research method (Path Analysis) with an associative approach. This study involves a causal relationship between exogenous and endogenous variables through intervening variables. This study uses a Cross Sectional approach, namely the collection of research data carried out at one time and does not measure changes over time. The location of this research was carried out at the Office Administration Education Study Program, Faculty of Economics and Business, State University of Surabaya. The population in this study were undergraduate students of the Office Administration Education Study Program, class of 2021 - 2024. Sampling in this study was carried out using the Probability purposive sampling technique with the Stratified Random



Sampling method based on certain criteria. Some of these criteria are active students who have taken the Introduction to Administration and Management Science (PIAM) course and students who know and use AI in the learning process. The calculation of this research sample uses the Slovin formula with the number of research samples being 281 students. Data collection techniques use pre-research interview instruments, questionnaire distribution and documentation from relevant sources. Data analysis techniques use SmartPLS as a tool in instrument testing and data testing

RESULTS AND DISCUSSIONS

Outer Model

A research instrument can meet the requirements for convergent validity if the outer loading value is >0.70 and the Average Variance Extracted (AVE) value is >0.50 (Ghozali, 2023). The following are the results of the convergent validity test.

Tabel 1 *Outer Loadings*

Indikator	PA	KA	KL	PB	Ket
PA1	0.800				Valid
PA2	0.821				Valid
PA3	0.741				Valid
PA4	0.847				Valid
KA1		0.785			Valid
KA2		0.794			Valid
KA3		0.797			Valid
KA4		0.848			Valid
KA5		0.886			Valid
KL1			0.835		Valid
KL2			0.840		Valid
KL3			0.848		Valid
KL4			0.841		Valid
KL5			0.819		Valid
PB1				0.794	Valid
PB2				0.841	Valid
PB3				0.781	Valid
PB4				0.873	Valid
PB5				0.870	Valid
PB6				0.847	Valid

As shown in Table 1, all variable indicators have outer loading values greater than 0.70. This reveals that the questionnaire items used in this study are valid and have met the criteria for convergent validity.

Tabel 2 Discriminant validity Cross Loadings

	KA	KL	PA	PB
KA1	0.785	0.629	0.611	0.486
KA2	0.794	0.639	0.587	0.493
KA3	0.797	0.565	0.586	0.444
KA4	0.848	0.699	0.632	0.486
KA5	0.886	0.677	0.637	0.554
KL1	0.618	0.835	0.633	0.675
KL2	0.594	0.840	0.644	0.690
KL3	0.673	0.848	0.703	0.637
KL4	0.699	0.841	0.652	0.565
KL5	0.694	0.819	0.645	0.562
PA1	0.492	0.567	0.800	0.637
PA2	0.533	0.560	0.821	0.703
PA3	0.645	0.655	0.741	0.523
PA4	0.705	0.749	0.847	0.631
PB1	0.601	0.659	0.709	0.794
PB2	0.490	0.686	0.658	0.841
PB3	0.536	0.597	0.627	0.781
PB4	0.480	0.589	0.662	0.873
PB5	0.439	0.597	0.607	0.870
PB6	0.449	0.610	0.618	0.847

Based on Table 2, the bolded values reveal cross loading scores above 0.70, and each is higher than the corresponding values for other constructs. This confirms that all statement items for each variable are valid (Ghozali, 2023). The discriminant validity test can also be reviewed utilizing the Fornell-Larcker Criterion technique (see table 3):

Tabel 3 Fornell – Larcker Criterion

	KA	KL	PA	PB
KA	0.823			
KL	0.783	0.837		
PA	0.742	0.791	0.803	
PB	0.600	0.749	0.777	0.835

The composite reliability test is conducted to determine the consistency of measurement outcomes by an instrument. The outcomes of the composite reliability test are (see table 4).

Tabel 4. Nilai Composite Reliability

Variable	Cronbach's Alpha	Composite Reliability (rho_c)
PA	0.816	0.879
KA	0.880	0.913
KL	0.893	0.921
PB	0.913	0.932

Table 4 shows that the Cronbach's Alpha and rho-c values for each variable exceed 0.70, indicating that the constructs in this study have passed the Composite Reliability test and can be considered reliable.

Inner Model

Structural or inner model testing is conducted after meeting the outer model requirements. This inner model test is utilized to determine the relationship among variables. The inner model test is conducted utilizing two methods: the R-Square value and hypothesis testing (path coefficient). The R-Square value is grouped into 3 categories: 0.67 (Strong), 0.33 (Moderate) and 0.19 (Weak) (Ghozali, 2023). The following are the outcomes of the R-Square test in this study:

Tabel 5 Nilai R-Square

	R-Square	R-Square Adjusted
Digital Literacy Skills	0.711	0.708
Learning Performance	0.659	0.655

By table 5, it is evident that the R-Square value for the intervening variable Digital Literacy Ability is 0.711, classified as strong. This reveals that Digital Literacy Ability can be influenced by the Use of AI and Academic Ethics Awareness by 71.1%, by the remaining 28.9% influenced by other untested factors. The R-Square value reveals that 65.9% of Learning Performance can be influenced by the Use of AI, Academic Ethics Awareness and Digital Literacy Ability, by 34.1% influenced by other untested factors.

Hypothesis (Path Aanalysis)

Hypothesis testing is carried out to determine whether the hypothesis in the study can be accepted or rejected. Hypothesis testing can be accepted if the t-statistic value $T\text{-statistic} > 1.96$ and P-Values < 0.05 (Ghozali, 2023). Below are the outcomes of the hypothesis test:

Tabel 6 Indirect Effect

Variable	T-Statics	P-Values
Indirect Effect		
Use of AI (X1) > Digital Literacy Skills (Z) > Learning Performance (Y)	3.324	0.001
Academic Ethics Awareness (X2) > Digital Literacy Skills (Z) > Learning Performance (Y)	3.973	0.000

Based on Table 6, The Use of AI affects Learning Performance through Digital Literacy Skills, as evidenced by the t-statistics value > 1.96 , that is 3.324 and p-value < 0.05 , that is 0.001. Academic Ethics Awareness affects Learning Performance through Digital Literacy Skills, as evidenced by the t-statistics value > 1.96 , that is 3.973 and p-value < 0.05 , that is 0.000.

Tabel 7. Direct Effect

Variabel	T-Statics	P-Values
Direct Effect		
Use of AI (X1) > Digital Literacy Skills (Z)	6.258	0.000
Academic Ethics Awareness (X2) > Digital Literacy Skills (Z)	6.008	0.000
Digital Literacy Skills (Z) > Learning Performance (Y)	4.589	0.000
Use of AI (X1) > Learning Performance (Y)	6.501	0.000
Academic Ethics Awareness (X2) > Learning Performance (Y)	2.049	0.040

Table 7 shows that the Use of AI has an effect on Digital Literacy Skills, as evidenced by the t-statistics value > 1.96 , that is 6.258 and p-value < 0.05 , that is 0.000. Academic Ethics Awareness towards Digital Literacy Skills has a t-statistics value of 6.008 where > 1.96 and a p-value < 0.05 , that is 0.000. This means that there is an influence among Academic Ethics Awareness and Digital Literacy Skills. Digital Literacy Skills have an effect on Learning Performance, as evidenced by the t-statistics value > 1.96 , that is 4.589 and a p-value < 0.05 , that is 0.000. The Use of AI on Learning Performance is stated to have an effect by a t-statistics value > 1.96 , that is 6.501 and a p-value < 0.05 , that is 0.000. Academic Ethics Awareness has an effect on Learning Performance, as evidenced by the t-statistics value > 1.96 , namely 2.049 and p-value < 0.05 , namely 0.040.

DISCUSSIONS

The Impact of Using Artificial Intelligence (AI) on Digital Literacy Skills

The use of AI has a significant impact on Digital Literacy Skills. This means that students who use the AI platform can have a good impact on honing their digital literacy skills. The results of this study are in line with the results of previous studies by (Agusnaya & Nirmala, 2024) that the use and understanding of AI concepts can help students face increasingly growing learning challenges, so that digital literacy is needed as an integral element in the preparation and learning process to improve understanding of the material. Research conducted by (Yusuf, 2024) revealed that the use of AI has an effect on Digital Literacy Skills. The study shows that the use of AI can form adaptive learning through the digital literacy skills they have. This is because digital literacy is an important part for AI users in improving a person's understanding of lecture material.

The results of the study (Zega & Batubara, 2024) also show a strong correlation between the use of AI which influences the improvement of a person's digital literacy skills. The results of this study are evidenced by the outer loading value on the variable indicators of AI Use and Digital Literacy Skills. In the variable indicator of AI Use, PA4 is higher than other indicators.

The indicator shows that students' insight into the existence of AI can be said to be broad. Students realize that AI has several different types and functions, so they use AI according to their learning needs. One of the AI features used by students is the conversation feature. This feature is used to answer questions or commands from users, so that students can use the feature to explore, understand the material and help complete their assignments. This is consistent with the highest indicator in the Digital Literacy Ability variable. The KL4 indicator has the highest Outer Loading value which shows that students use digital information from AI based on the evaluation results. The information obtained is analyzed first and then the relevant ones are selected.

The indicators in the construct of AI Use and Digital Literacy Ability that are classified as low are PA3 and KL5. The low outer loading value in PA3 explains that not all respondents use AI selectively. This could happen because there are different purposes for using AI that were not examined in this study. Likewise, the KL5 indicator reveals that some students are reluctant to evaluate information obtained from AI. The students' non-selective attitude has an impact on their digital literacy abilities. The importance of students having a selective attitude in choosing information obtained from AI so that the information is relevant and accurate. The use of AI is not only to provide information, but also provides opportunities for users to stimulate their critical thinking skills. In conclusion, this study shows that the use of AI in the learning process can affect digital literacy skills.

The Influence of Academic Ethics Awareness on Digital Literacy Skills

The results of this study indicate that Academic Ethics Awareness has an effect on Digital Literacy Skills. This is in accordance with research from (Tanjung et al., 2024) that academic ethics are used as a guideline in using digital technology in honing digital literacy skills so that the information obtained is as expected. Further research (Yahya et al., 2024) also explains that ethical awareness contributes to digital literacy skills. Further research also revealed that high academic ethics awareness can have a good impact on digital literacy skills (Haris et al., 2024).

The results of this study are evidenced by the Outer loading value on each indicator of the Academic Ethics Awareness and Digital Literacy Skills variables. KA5 has the highest outer loading value indicating that students have high ethical awareness in utilizing digital platforms. Students realize that information obtained from AI is certainly not always accurate or relevant to what is expected. So students take the initiative to re-confirm the information obtained from trusted sources, such as official websites. That way, students minimize the

occurrence of ethical violations such as data falsification. This can certainly improve students' digital literacy skills in analyzing digital information. Proven by the highest outer loading value on the KL4 indicator. High ethical awareness allows students to always be careful in using digital information, so that the KL4 indicator reveals that students anticipate ethical problems by reviewing the information obtained and selecting accurate and relevant ones.

Indicators KA1 and KL5 have low outer loading values. Indicator KA1 reveals that not all students are aware that the use of AI is not allowed to disseminate personal information. Several students showed that their carelessness in using personal information when using AI. This lack of vigilance has an impact on their digital literacy skills, so that students are reluctant to first evaluate the information provided or obtained from AI. For this reason, it is important to anticipate ethical violations by not providing any personal information. Thus, it can be concluded that students who have high academic ethical awareness can influence the improvement of digital literacy skills.

The Influence of Digital Literacy Skills on Learning Performance

The results of this study indicate that there is an influence between Digital Literacy Skills on Student Learning Performance. This means that students who apply digital literacy when searching for information related to PIAM courses through digital platforms can help their learning performance. Students can search for and understand information about PIAM courses well through the application of digital literacy. The results of this study are supported by research from (Agusnaya & Nirmala, 2024) which revealed that digital literacy can increase the effectiveness of learning, so that students can improve their understanding of the material and learning achievement. Subsequent research from (Zulfikhar et al., 2024) revealed that digital literacy skills in the use of AI platforms can improve student learning outcomes. The study explains that students who apply digital literacy can improve their understanding of the material which can ultimately improve their learning outcomes. This is in line with the results of the study that the final PIAM score for students can be said to be good. Research (Sugiarto & Farid, 2023) also states that digital literacy is an important element in making it easier for students to search for information and increase their insight into the material.

The results of this study are proven by the high Outer loading value on the variables of Digital Literacy Ability and Learning Performance. Indicators KL1, KL2, KL3 and KL4 have high Outer loading values indicating that students use more than one digital platform to support the learning process. AI information is analyzed first and then evaluated according to learning

needs. These results are closely related to indicators PB4 and PB5 that the variety of digital platforms can increase their enthusiasm for learning. This is because digital platforms provide features that can help students support their learning easily and save time. Students can access AI anywhere and anytime. This means that the use of AI is flexible, making it easier for students to work.

The low Outer loading on these two variables explains that some students use AI not only when they have difficulty finding references for PIAM materials. However, there are several factors that make students use AI that were not examined in this study. This explains that the use of AI becomes a habit that is done when doing something. This habit can be balanced with Digital Literacy Ability so as not to reduce critical thinking and learning quality.

The Impact of AI Use on Learning Performance

The results of this study are supported by previous research from (Yassir & Saharuna, 2024). which revealed that the use of AI can have a significant effect on one of the indicators of this study on the learning performance variable, namely learning outcomes. Subsequent research from (Putri et al., 2023) showed that the use of AI has great potential to influence the improvement of learning performance to be more efficient. (Gupta & Chen, 2022) in their research revealed that the use of the AI platform can help students understand lecture materials, learning efficiency and help achieve better learning outcomes.

The results of this study are supported by the Outer loading value on each indicator of the AI Use and Learning Performance variables. Outer loadings that have high values are indicators PA2 and PB4. Both indicators reveal that there are various AI platforms used by students to support their learning process, including in the PIAM course. Students use it to explore and understand materials related to administration and management. Students feel that using AI can help their learning process become more efficient. Students assume that the features provided by AI can be easily used, making it easy to operate. This convenience is one of the factors for students in exploring and understanding the material practically.

However, the use of AI needs to be accompanied by an understanding that the information obtained must be relevant and accurate. This is because the PA3 Indicator shows a low outer loading value which reveals that some students who use AI only pay attention to efficiency in finding information and completing assignments, but ignore less relevant information, so that this has an impact on their learning process. In addition, the outer loading that has a low value on the PB3 indicator explains that some students have inadequate internet

connections. This allows one of the factors that hinders the smoothness of accessing AI, so that the information obtained is less than optimal which will ultimately impact learning performance. Thus, adequate internet usage becomes an important thing in accessing digital information to be more optimal.

The Influence of Academic Ethics Awareness on Learning Performance

There is a significant influence between the Academic Ethics Awareness variable and Learning Performance. The outer loading values that have high values in the Academic Ethics Awareness variable are KA3, KA4 and KA5. Students have high ethical awareness in using digital platforms and information to facilitate a safer and more focused learning process. Students who are aware of ethics in searching for and using information from digital platforms, students are always careful in acting to search for or use digital information. Students present information from AI that has been processed in advance in their own language, thus minimizing plagiarism. Students analyze information that is considered inappropriate and evaluate information by sorting and selecting information that is relevant to learning needs. In addition, students who are aware of unethical actions, allow students to re-check the accuracy of the information by reviewing it from the original source. This happens because students understand that plagiarism and falsifying data are violations of academic ethics. That way, student learning performance can run effectively, efficiently and in a focused manner. The results of the study showed that Academic Ethics Awareness has an effect on Learning Performance. These findings are supported by previous research from (Haris et al., 2024), showing that the better the ethics of students in using AI, the better their ability to analyze information which will ultimately impact their learning comprehension. Subsequent research from (Ummah, 2019) the better students' perceptions of ethical actions, the better they are in facilitating the learning process in a directed manner. Research (Yahya et al., 2024) also revealed that ethical awareness in using AI contributes to improving critical thinking skills. Subsequent research from (Tanjung et al., 2024) revealed that academic ethics and learning activities are two important elements in optimizing the use of digital platforms to achieve good results.

The results of this study also explain that some students are still less aware of the importance of maintaining data privacy. This is because the outer loading value on the KA1 indicator has a low value. Students need to improve their security by not providing personal or sensitive information. Therefore, the use of AI There is student awareness in implementing academic ethics when using AI, so students are always careful in accessing, understanding and

processing the information obtained. That way, students can use digital information without violating ethics and will ultimately provide satisfactory results and in accordance with expectations.

The Effect of Using AI on Learning Performance through Digital Literacy Skills

This study reveals that there is a significant influence between the Use of AI on Learning Performance. This means that the more often students use AI in the learning process, the more it will hone their digital literacy skills and ultimately improve their learning performance. Research from (Alkalai, 2004) revealed that life in the digital era needs to integrate advanced technology such as AI to develop digital literacy skills as a form of effort in the learning process. These findings are supported by previous research from (Yusuf, 2024) which revealed that the use of AI in the learning process can foster students' digital literacy skills and ultimately improve student learning achievement. Subsequent research from (Aulia & Umar, 2024) revealed that the use of AI is important to be accompanied by literacy to get a better learning process.

This study is supported by Outer loading on the Use of AI variable which is in the high category, meaning that students of Office Administration Education (PAP) at Surabaya State University have known and used the AI platform to help the PIAM learning process. The mean value of the Digital Literacy Ability variable is also in the high category, which means that PAP students apply digital literacy when accessing and searching for information related to the PIAM course. Then, the Outer loading value on the Learning Performance variable is in the high category, which means that the student learning process in the PIAM course can be improved with the help of AI and the application of digital literacy skills.

The high Outer loading value and data analysis on the three variables are interrelated so that there is an influence between the Use of AI on Learning Performance through Digital Literacy Skills. The high Outer loading value on the AI Use variable, students can use their knowledge related to AI to make it easier for them to use AI technology to search for, understand material and help complete lecture assignments efficiently. The high Outer loading value of the Digital Literacy Ability variable plays an important role in managing information obtained from AI. Students can think critically by analyzing and evaluating information appropriately. This is to obtain quality information that is in accordance with learning needs. The high Outer loading value on the AI Use and Digital Literacy Ability variables influences students in understanding material and completing lecture assignments, which ultimately

students can obtain learning outcomes that are in accordance with their learning efforts. Thus, the use of AI affects student learning performance through digital literacy skills.

The Influence of Academic Ethics Awareness on Learning Performance through Digital Literacy Skills

This study reveals that there is an influence between Academic Ethics Awareness and Student Learning Performance through Digital Literacy Skills. This means that the Academic Ethics Awareness variable has an impact on students' Digital Literacy Skills and ultimately affects their learning performance. Students who have high academic ethics awareness tend to be more careful in accessing, managing and presenting information obtained from digital platforms by upholding ethical attitudes. The existence of high Academic Ethics Awareness allows students to be vigilant from within to avoid plagiarism, not paraphrasing, not citing sources and so on. On the other hand, good Digital Literacy Skills allow students to access, manage, analyze, evaluate and select information that suits their learning needs. Thus, students can understand and improve their learning performance.

The results of this study are supported by previous research from (Ramli, 2023) that the use of digital platforms needs to emphasize ethical attitudes in order to access information to achieve maximum results. The study also emphasized that digital literacy skills in reading, thinking critically, analyzing and evaluating information can bridge ethical aspects in order to get good results. Research from (Haris et al., 2024) also revealed that the higher the awareness of academic ethics, the better the digital literacy skills, which will ultimately improve learning performance. Subsequent research by (Tanjung et al., 2024) revealed that academic ethics have an effect on increasing digital literacy as a learning medium in helping students to search for, understand and use information properly.

This study is supported by the Outer loading value on the Academic Ethics Awareness variable which is in the high category. This means that PAP students in the 2021 - 2024 intake have high academic ethics awareness in seeking information through the use of digital platforms. Students apply honesty values to avoid unethical behavior such as plagiarism, not paraphrasing and others. The Outer loading value on the Digital Literacy Ability variable is also in the high category, which means that the ability to think critically, analyze and evaluate information allows students to reread information and choose information that suits their needs. Digital literacy skills also allow students to rewrite information in their own language without directly copying information from digital platforms. Students can minimize unethical actions.

In turn, the information obtained can help students understand or help complete college assignments, so that learning performance can be achieved well. Thus, Academic Ethics Awareness through Digital Literacy Skills affects Learning Performance.

CONCLUSION

The results of the study showed that there was an influence between the Use of AI on Digital Literacy Skills, Academic Ethics Awareness had an effect on Digital Literacy Skills, Digital Literacy Skills had an effect on Learning Performance, the Use of AI had an effect on Learning Performance, Academic Ethics Awareness had an effect on Learning Performance, the Use of AI had an effect on Learning Performance through Digital Literacy Skills and Academic Ethics Awareness had an effect. Based on the test results and discussions in this study, there are several suggestions for further research: This study only focuses on students of the Unesa Office Administration Education S1 study program who use AI, so the results cannot be generalized, so further research is expected to expand the research population to add to the literature, Further research is advised to use other exogenous variables, Further research is advised to use moderation variables to determine the strength or weakness of a study and Further research is advised to refer to the use of a specific and latest AI platform as a research object.

REFERENCES

- Agusnaya, N., & Nirmala, P. (2024). Skala Literasi AI terhadap Prestasi Belajar Mahasiswa dalam Konteks Pendidikan Level Perguruan tinggi di Era Digital. *Journal of Vocational, Informatics and Computer Education*, 2(2), 103–116. <https://doi.org/10.61220/voice.v2i2.20243>
- Alkalai, Y. (2004). Digital Literacy: A Conceptual Framework for Survival Skills in the Digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106. [http://www.editlib.org/p/4793/%5Cnfiles/364/Eshet and Eshet - 2004 - Digital Literacy A Conceptual Framework for Survi.pdf%5Cnfiles/459/4793.html](http://www.editlib.org/p/4793/%5Cnfiles/364/Eshet%20and%20Eshet%20-%202004%20-%20Digital%20Literacy%20A%20Conceptual%20Framework%20for%20Survival%20Skills%20in%20the%20Digital%20Era.pdf)
- Aulia, S. E., & Umar, A. T. (2024). *Pengaruh Penggunaan Teknologi AI dan Literasi Digital Terhadap Minat Belajar Siswa Kelas XI Jurusan Perkantoran di SMKN 1 Medan*. 7, 7907–7913.
- Fatimah, S., Manuardi, A. R., & Meilani, R. (2021). Tingkat Efikasi Diri Performa Akademik Mahasiswa Ditinjau Dari Perspektif Dimensi Bandura. *Prophetic : Professional, Empathy, Islamic Counseling Journal*, 4(1), 25. <https://doi.org/10.24235/prophetic.v4i1.8753>
- Ghozali. (2023). *Smart PLS Next Generation Statistics*.
- Gupta, S., & Chen, Y. (2022). Supporting Inclusive Learning Using Chatbots? A Chatbot-Led

Interview Study. *Journal of Information Systems Education*, 33(1), 98–108.

- Haris, H., Muhammad Ridha Darwis, Arsyanda, M. Rahmat Wahyudi JY, & M. Ilham. (2024). Analisis Dampak Literasi Artificial Intelligence terhadap Perubahan Norma Dan Etika Akademik Mahasiswa. *Jurnal Pendidikan Terapan*, 02(November 2023), 66–77. <https://doi.org/10.61255/jupiter.v2i1.200>
- Karyadi, B. (2023). Pemanfaatan Kecerdasan Buatan Dalam Mendukung Pembelajaran Mandiri. *Educate: Jurnal Teknologi Pendidikan*, 8(2), 253–258. <https://doi.org/10.32832/educate.v8i02.14843>
- Luthfiah, N., Salminawati, S., & Dahlan, Z. (2024). Persepsi Mahasiswa tentang Penggunaan Artificial Intelligence Quillbot dalam Mengatasi Plagiarisme dan Kesadaran Etika Akademik Mahasiswa. *Cetta: Jurnal Ilmu Pendidikan*, 7(1), 259–266. <https://doi.org/10.37329/cetta.v7i1.3153>
- Michael Reskiantio Pabubung. (2021). Epistemologi Kecerdasan Buatan (AI) dan Pentingnya Ilmu Etika dalam Pendidikan Interdisipliner. *Jurnal Filsafat Indonesia*, 4(2), 152–159.
- Muasyaroh, H., & Royanto, L. R. M. (2021). Pembelajaran jarak jauh di masa pandemi COVID-19: Peran literasi digital dan task value terhadap self-regulated learning mahasiswa. *Jurnal Psikologi Ulayat*, 8, 247–265. <https://doi.org/10.24854/jpu172>
- Mulyadi, R., & Afriansyah, E. A. (2022). Pengaruh literasi digital terhadap kemandirian belajar matematika siswa. *Math Didactic: Jurnal Pendidikan Matematika*, 8(2), 183–191. <https://doi.org/10.33654/math.v8i2.1898>
- Ni Made Anggi Arlina Putri, & Faridawaty, E. (2022). Studi deskriptif terkait pemahaman mahasiswa hukum terhadap tindakan plagiarisme. *Satya Dharma Jurnal Ilmu Hukum*, 5(1), 14–26.
- Pembelajaran, D., Kemahasiswaan, D. A. N., Jenderal, D., Tinggi, P., Teknologi, R. D. A. N., Pendidikan, K., & Teknologi, R. D. A. N. (2024). *Panduan Penggunaan Generative Artificial Intelligence (GenAI)*.
- Putri, V. A., Sotyawardani, K. C. A., & Rafael, R. A. (2023). Peran Artificial Intelligence dalam Proses Pembelajaran Mahasiswa di Universitas Negeri Surabaya. *Prosiding Seminar Nasional Universitas Negeri Surabaya*, 2, 615–630.
- Ramli, M. (2023). Mengeksplorasi Tantangan Etika Dalam Penggunaan Chat GPT Sebagai Alat Bantu Penulisan Ilmiah: Pendekatan Terhadap Integritas Akademik. *TA'DIBAN: Journal of Islamic Education*, 4(1), 1–10. <https://doi.org/10.61456/tjie.v4i1.129>
- Rini, R., Mujiyati, Sukanto, I., & Hariri, H. (2022). The Effect of Self-Directed Learning on Students' Digital Literacy Levels in Online Learning. *International Journal of Instruction*, 15(3), 329–344. <https://doi.org/10.29333/iji.2022.15318a>
- Rizki, O. F., Fernandes, R., & Kartika, R. (2024). *Pengetahuan dan Pemanfaatan Chat GPT di Kalangan Mahasiswa (Studi Kasus : Mahasiswa Departemen Sosiologi Universitas Negeri Padang)*. 3, 222–228.
- Sitorus, M., & Murti, M. D. F. (2024). Analisis Pengaruh Penggunaan Artificial Intelligence Pada Pembelajaran di Cyber University. *Jurnal Ilmu Komputer Sistem Informasi & Teknologi Informasi (Innotech)*, 1(2), 90–101.
- 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>

- Supriyadi, E., & Indonesia, U. P. (2024). Penggunaan ChatGPT Open AI pada penulisan karya tulis ilmiah dan dampaknya bagi mahasiswa. *Prosiding Nasional 2024 Universitas Abdurachman Saleh Situbondo*, 123–130.
- Suryani, I., Nasution, P., Lestari, B., Juliana, J., Kesi, K., & Purba, N. H. (2023). Defenisi Etika Akademik. *Hukum Dan Demokrasi (HD)*, 23(2), 58–67. <https://doi.org/10.61234/hd.v23i2.17>
- Tanjung, A. Q., Suciptaningsih, O. A., & Asikin, N. (2024). Urgensi Etika Dalam Literasi Digital Di Era Globalisasi. *WASIS: Jurnal Ilmiah Pendidikan*, 5(1), 32–41. <https://doi.org/10.24176/wasis.v5i1.11566>
- Ully, M., Baharuddin, Abraham Manuhutu, & Heru Widoyo. (2023). Penerapan Kecerdasan Buatan Dalam Sistem Informasi: Tinjauan Literatur Tentang Aplikasi, Etika, Dan Dampak Sosial. *Review Pendidikan Dan Pengajaran*, 6, 3–7. <https://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/20719/14884>
- Ummah, M. S. (2019). Pengaruh Persepsi Etis dan Frekuensi Komunikasi Peer Group Terhadap Tingkat Penggunaan Chat GPT oleh Mahasiswa sebagai Media Pembelajaran Digital di Era Education 4.0. *Sustainability (Switzerland)*, 11(1), 1–14.
- Unesa, P. (2025). *Visi, Misi dan Tujuan PAP Unesa*. <https://pap.feb.unesa.ac.id/page/visi-misi-tujuan>
- Wahyuni, S. F., & Dahlia, D. (2020). Hubungan Antara Efikasi Diri Akademik Dengan Prestasi Akademik Pada Siswa Sma Di Banda Aceh. *Seurune : Jurnal Psikologi Unsyiah*, 3(2), 80–100. <https://doi.org/10.24815/s-jpu.v3i2.17612>
- Yahya, R. N., Azizah, S. N., & Herlambang, Y. T. (2024). Pemanfaatan ChatGPT di Kalangan Mahasiswa: Sebuah Tinjauan Etika Teknologi dalam Perspektif Filsafat. *UPGRADE : Jurnal Pendidikan Teknologi Informasi*, 1(2), 53–59. <https://doi.org/10.30812/upgrade.v1i2.3481>
- Yassir, M., & Saharuna. (2024). Pengaruh Artificial Intelligence (AI) Terhadap Hasil Belajar Mahasiswa yang Dimediasi oleh Motivasi Belajar dan Kreativitas. *Jambura Journal of Educational Management*, 5, 45–54. <https://ejournal-fip-ung.ac.id/ojs/index.php/JJEM/article/view/2921>
- Yuni Mustika, A., Ribhi Amalia, M., Hamka Aulia, M., Munika Putri, N., Guntur Alam, N., Adelia Amri, S., Salma Syifani, S., Puri Azzahra, S., & Khoir Aisyah, U. (2024). Penggunaan Artificial Intelligence (AI) Dalam Proses Kegiatan Belajar di Mata Kuliah IPA Dasar Mahasiswa Pendidikan IPA Universitas Negeri Semarang. *Jurnal Analis*, 3(1), 112–122.
- Yusuf, M. (2024). Penggunaan Artificial Intelligence (AI) Dalam Meningkatkan Literasi Digital Pada Lembaga Pendidikan Islam. *AKSI: Jurnal Manajemen Pendidikan Islam*, 2(2), 109–118. <https://doi.org/10.37348/aksi.v2i2.360>
- Zahra Salsabilla, K. A., Tasya Diva Fortuna Hadi, Widya Pratiwi, & Siti Mukaromah. (2023). Pengaruh Penggunaan Kecerdasan Buatan Terhadap Mahasiswa Di Perguruan Tinggi. *Prosiding Seminar Nasional Teknologi Dan Sistem Informasi*, 3(1), 168–175. <https://doi.org/10.33005/sitasi.v3i1.371>
- Zega, T. O., & Batubara, A. K. (2024). Pengaruh Artificial Intelligence (AI) terhadap Digital

Literasi Mahasiswa Ilmu Perpustakaan Angkatan 2021 UIN Sumatera Utara, Medan. *Reslaj: Religion Education Social Laa Roiba Journal*, 6(6), 3371–3390. <https://doi.org/10.47476/reslaj.v6i6.2838>

Zulfikhar, R., Nurfaiz, Y., & Majid, A. (2024). Analisis Literasi AI Meningkatkan Motivasi dan Hasil Belajar Mahasiswa di Perguruan Tinggi Kota Makassar. *Innovation and Applied Education Journal*, 1(1), 14–19. <https://journal.lontaradigitech.com/IAEJ/article/view/157>