

Gorontalo Accounting Journal
https://jurnal.unigo.ac.id/index.php/gaj
Vol. 9, Issue. 2, October 2026
P-ISSN: 2614-2074, E-ISSN: 2614-2066
Nationally Accredited Journal, Decree No.225/E/KPT/2022 Sinta 4

Fraud Hexagon and Academic Fraud in Artificial Intelligence Usage: The Moderating Role of Social and Environmental Ethics Awareness

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Citation: Tania, E. R. P., & Sulistyowati, E. (2026). Fraud Hexagon and Academic Fraud in Artificial Intelligence Usage: The Moderating Role of Social and Environmental Ethics Awareness. *Gorontalo Accounting Journal*, 9(2), 345-363. DOI: 10.32662/gaj.v9i2.5010

Article information

Article history:
Received: 15-06-2025
Revised: 22-07-2026
Accepted: 26-09-2026

Abstract. *This study aims to examine the effect of Fraud Hexagon factors on academic fraud in the use of Artificial Intelligence among accounting students and to investigate the moderating role of Social and Environmental Ethics Awareness. Using a quantitative approach with an explanatory research design, this study involved 252 respondents selected from a population of 681 accounting students at Universitas Pembangunan Nasional "Veteran" Jawa Timur through proportionate stratified random sampling. Data were analyzed using PLS-SEM with SmartPLS 4.1. The results show that pressure, arrogance, and collusion positively affect academic fraud, whereas opportunity, rationalization, and capability have no significant effect. Furthermore, Social and Environmental Ethics Awareness does not moderate the relationship between Fraud Hexagon factors and academic fraud. These findings extend the application of Fraud Hexagon Theory in explaining academic fraud associated with the use of Artificial Intelligence in higher education.*

Abstrak. Penelitian ini bertujuan untuk menganalisis pengaruh faktor-faktor Fraud Hexagon terhadap academic fraud dalam penggunaan Artificial Intelligence pada mahasiswa akuntansi serta menguji peran Social and Environmental Ethics Awareness sebagai variabel moderasi. Penelitian ini menggunakan pendekatan kuantitatif dengan desain explanatory research dan melibatkan 252 responden yang dipilih dari populasi sebanyak 681 mahasiswa akuntansi Universitas Pembangunan Nasional "Veteran" Jawa Timur menggunakan teknik proportionate stratified random sampling. Analisis data dilakukan menggunakan PLS-SEM dengan bantuan SmartPLS 4.1. Hasil penelitian menunjukkan bahwa pressure, arrogance, dan collusion berpengaruh positif terhadap academic fraud, sedangkan opportunity, rationalization, dan capability tidak berpengaruh signifikan. Selain itu, Social and Environmental Ethics Awareness tidak terbukti memoderasi hubungan antara faktor-faktor Fraud

Hexagon dan academic fraud. Temuan ini memperluas penerapan Fraud Hexagon Theory dalam menjelaskan academic fraud pada penggunaan Artificial Intelligence di lingkungan pendidikan tinggi.

Keywords:
Academic Fraud;
Artificial Intelligence;
Fraud Hexagon Factors

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Introduction

The rapid advancement of digital technology has transformed various aspects of human life, including the education sector. In higher education, Artificial Intelligence (AI) has emerged as an innovative technology capable of supporting learning activities, improving efficiency, and facilitating access to information. Cotton et al. (2024) argued that AI offers significant benefits for educational activities by enhancing learning accessibility and productivity. Despite these advantages, the increasing integration of AI into academic environments has also raised concerns regarding academic integrity and ethical behavior among students.

The growing accessibility of AI has changed the way students engage with academic tasks. Students can now generate ideas, summarize information, and complete assignments more efficiently through AI-assisted technologies. While these capabilities may support learning, excessive dependence on AI may reduce students' engagement in the learning process and encourage the completion of academic tasks without adequate cognitive effort. According to Cotton et al. (2024), the use of AI beyond acceptable educational boundaries may create challenges related to plagiarism, unauthorized assistance, and other forms of academic misconduct.

Concerns regarding the ethical implications of AI utilization have also emerged in Indonesia. Rijal (2023) discussed how the increasing use of AI has generated challenges for academic ethics, particularly when technology replaces students' independent learning efforts. Similar concerns were raised by Can (2023), who highlighted several risks associated with the misuse of ChatGPT in higher education. Meanwhile, Hantoro (2025) emphasized the growing need for institutional regulations to ensure the responsible use of AI in academic settings. These discussions reflect broader concerns regarding the potential impact of AI on academic integrity and suggest that technological advancement may create new opportunities for academic fraud.

Preliminary observations involving 110 students from the Accounting Study Program, Faculty of Economics and Business, Universitas Pembangunan Nasional “Veteran” East Java revealed that students not only engaged in conventional forms of academic misconduct but also utilized AI unethically. Several students admitted using AI to complete assignments, answer examinations without lecturers’ permission, conceal the use of AI through collaboration with peers, and exploit weaknesses in academic supervision. These findings suggest that technological developments may create opportunities, strengthen rationalizations, and increase students’ capabilities to commit academic fraud. This phenomenon can be explained through the Theory of Planned Behavior, which proposes that individual behavior is influenced by intentions and perceptions regarding a particular action. As explained by Ajzen and cited in Suhermin (2022:15-17), individuals tend to perform behaviors that they perceive as beneficial and acceptable within their environment.

Academic fraud represents a form of unethical behavior that can be explained through the Fraud Hexagon Theory proposed by (Vousinas, 2019). Unlike previous fraud models, the Fraud Hexagon Theory incorporates six dimensions, namely

pressure, opportunity, rationalization, capability, arrogance, and collusion. These dimensions provide a more comprehensive framework for understanding fraudulent behavior in various contexts, including academic settings.

Although the Fraud Hexagon Theory has been widely applied in fraud-related research, findings concerning its influence on academic fraud remain inconsistent. Pratiwi & Munari (2023) identified opportunity and rationalization as significant determinants of academic fraud. However, Prastiwi et al. (2025) reported that pressure, rationalization, capability, and collusion significantly influenced fraudulent behavior among students. Different evidence was presented by Minshy L. Tameno et al. (2025), who found that rationalization, arrogance, and collusion were the dominant factors associated with academic dishonesty among accounting students. These differences suggest that the explanatory power of Fraud Hexagon dimensions may vary across contexts and populations. Consequently, there is still no clear consensus regarding which dimensions most strongly explain academic fraud, particularly in the context of AI utilization.

Beyond Fraud Hexagon factors, academic fraud behavior may also be influenced by ethical considerations. Ethical Awareness Theory suggests that individuals with higher levels of ethical awareness tend to evaluate the consequences of their actions more carefully and are more likely to behave in accordance with prevailing moral values and social norms. This perspective has evolved into the concept of Social and Environmental Ethics Awareness (SEEA), which emphasizes awareness of the social and environmental consequences resulting from individual actions. Students who possess stronger ethical awareness are expected to demonstrate greater responsibility when utilizing AI for academic purposes. Therefore, ethical awareness may reduce the tendency to justify dishonest behavior even when individuals experience pressure, encounter opportunities, possess the capability to commit fraud, or become involved in collusive situations.

Previous studies have emphasized that ethical values and moral considerations play an important role in preventing fraudulent behavior. Nevertheless, the effectiveness of these values may vary depending on organizational and environmental contexts (Serly & Viviany, 2025). This finding suggests that Social and Environmental Ethics Awareness may not only directly influence individual behavior but may also alter the strength of the relationship between Fraud Hexagon dimensions and academic fraud. Therefore, SEEA is expected to function as a moderating variable in explaining academic fraud behavior among accounting students.

Accounting students represent an important group for investigating academic fraud because they are expected to uphold ethical values, professionalism, and integrity throughout their future careers. As future accounting professionals, they will be responsible for managing and reporting financial information that requires a high level of ethical judgment. Consequently, academic dishonesty during higher education may indicate a greater risk of unethical behavior in professional settings.

The relationship between Fraud Hexagon dimensions and academic fraud may therefore differ depending on an individual's level of ethical awareness. Students with stronger Social and Environmental Ethics Awareness are expected to be more resistant to factors that encourage academic misconduct. Despite its potential importance, empirical evidence regarding the moderating role of SEEA remains limited, particularly in studies examining academic fraud among accounting students.

Several research gaps can be identified from previous studies. First, empirical findings regarding the influence of Fraud Hexagon dimensions on academic fraud remain inconsistent. Previous studies have identified different dimensions as

significant predictors of academic fraud, indicating that the explanatory power of the Fraud Hexagon framework remains inconclusive. Second, most existing studies have focused on conventional forms of academic misconduct, whereas academic fraud associated with AI utilization has received relatively limited scholarly attention. Third, only a few studies have examined the moderating role of Social and Environmental Ethics Awareness within the Fraud Hexagon framework, particularly among accounting students in Indonesia. These limitations indicate the need for further investigation to provide a more comprehensive understanding of academic fraud behavior in the era of Artificial Intelligence.

Building upon these gaps, the present study contributes to the literature in several ways. First, this study investigates academic fraud in the context of Artificial Intelligence utilization, an emerging issue that has received limited attention in previous Fraud Hexagon research. Second, the study focuses on accounting students, whose future professional responsibilities require strong ethical standards and integrity. Third, Social and Environmental Ethics Awareness is incorporated as a moderating variable to provide a more comprehensive explanation of academic fraud behavior. Through these contributions, this study extends the existing literature and offers a broader understanding of the factors influencing academic fraud in the era of digital transformation. Therefore, this study aims to examine the influence of Fraud Hexagon factors on academic fraud among accounting students in the use of Artificial Intelligence and to investigate the moderating role of Social and Environmental Ethics Awareness.

Research Methods

This study employed a quantitative approach with an explanatory research design. The population consisted of 681 accounting students from the 2022 and 2023 cohorts at Universitas Pembangunan Nasional "Veteran" Jawa Timur. A total of 252 respondents were selected using proportionate stratified random sampling. The respondents were limited to students who had completed Accounting Examination, Business and Professional Ethics, and National Defense courses because they had been exposed to concepts related to integrity, ethics, compliance, and professional responsibility.

Primary data were collected through an online questionnaire using Google Forms. The independent variables consisted of the Fraud Hexagon dimensions, namely pressure, opportunity, rationalization, capability, arrogance, and collusion. Academic fraud in the context of Artificial Intelligence utilization served as the dependent variable, while Social and Environmental Ethics Awareness (SEEA) functioned as the moderating variable. The measurement instruments were adapted from Theotama et al. (2023), Maharmah et al. (2025), and Kong & Zhu (2025). The constructs were measured using indicators related to academic pressure, supervision weaknesses, justification of misconduct, capability to commit fraud, disregard for academic rules, collusive behavior, unethical academic practices, and ethical awareness in using Artificial Intelligence.

All questionnaire items were measured using a five-point Likert scale. Since the data were collected using a self-administered questionnaire, collinearity statistics were examined to assess the potential for common method bias. The VIF values ranged from 1.431 to 3.129, indicating that common method bias was not a serious concern in this study (Hair et al. 2022). Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 4.1. The analysis included measurement model assessment, structural model evaluation, and moderation analysis.

Results and discussion

Research Results

Convergent Validity Test

Table 1. Convergent Validity Test Results (1)

Variable	Item	Outer Loading	Remarks
Pressure	X1.1	0.848	Valid
	X1.2	0.755	Valid
	X1.3	0.820	Valid
	X1.4	0.673	Invalid
Opportunity	X2.1	0.840	Valid
	X2.2	0.654	Invalid
	X2.3	0.661	Invalid
	X2.4	0.761	Valid
Rationalization	X3.1	0.731	Valid
	X3.2	0.834	Valid
	X3.3	0.784	Valid
	X3.4	0.812	Valid
Capability	X4.1	0.795	Valid
	X4.2	0.894	Valid
	X4.3	0.929	Valid
	X4.4	0.902	Valid
Arrogance	X5.1	0.850	Valid
	X5.2	0.659	Invalid
	X5.3	0.842	Valid
	X5.4	0.837	Valid
Collusion	X6.1	0.911	Valid
	X6.2	0.932	Valid
	X6.3	0.931	Valid
	X6.4	0.928	Valid
Academic Fraud	Y.1	0.689	Invalid
	Y.2	0.834	Valid
	Y.3	0.786	Valid
	Y.4	0.533	Invalid
	Y.5	0.829	Valid
	Y.6	0.770	Valid
Social and Environmental Ethics Awareness	M.1	0.735	Valid
	M.2	0.805	Valid
	M.3	0.812	Valid
	M.4	0.725	Valid
	M.5	0.721	Valid
	M.6	0.777	Valid

Source: Processed Primary Data (2026)

Based on the test results in Table 1, there are still several indicators that do not meet the convergent validity criteria because they have a loading factor value below 0.70. Therefore, model modifications were carried out through the elimination of indicators that did not meet the criteria, then re-testing the research model was carried out.

Table 2. Convergent Validity Test Results (2)

Variable	Item	Outer Loading	Remarks
Pressure	X1.1	0.874	Valid
	X1.2	0.777	Valid
	X1.3	0.823	Valid
Opportunity	X2.1	0.894	Valid
	X2.4	0.811	Valid
Rationalization	X3.1	0.725	Valid
	X3.2	0.840	Valid
	X3.3	0.783	Valid
	X3.4	0.811	Valid
Capability	X4.1	0.790	Valid
	X4.2	0.893	Valid
	X4.3	0.930	Valid
	X4.4	0.905	Valid
Arrogance	X5.1	0.876	Valid
	X5.3	0.849	Valid
	X5.4	0.858	Valid
Collusion	X6.1	0.910	Valid
	X6.2	0.932	Valid
	X6.3	0.932	Valid
	X6.4	0.929	Valid
Academic Fraud	Y.2	0.767	Valid
	Y.3	0.850	Valid
	Y.5	0.783	Valid
	Y.6	0.715	Valid
Social and Environmental Ethics Awareness	M.1	0.735	Valid
	M.2	0.890	Valid
	M.3	0.758	Valid
	M.4	0.882	Valid
	M.5	0.772	Valid
	M.6	0.874	Valid

Source: Processed Primary Data (2026)

Based on the results of the retest in Table 2, all indicators used in the study had a loading factor value above 0.70. Thus, all indicators in each variable have met the convergent validity criteria so that they are declared valid and suitable for use in further analysis.

Average Variance Extracted (AVE)

Table 3. Results Average Variance Extracted (AVE)

Variable		Average Variance Extracted (AVE)	Remarks
Pressure	X1	0.682	Valid
Opportunity	X2	0.728	Valid
Rationalization	X3	0.626	Valid
Capability	X4	0.777	Valid
Arrogance	X5	0.742	Valid
Collusion	X6	0.857	Valid
Academic Fraud	Y	0.685	Valid
Social and Environmental Ethics Awareness	M	0.595	Valid

Source : Processed Primary Data (2026)

Based on Table 3, all variables in this study had an Average Variance Extracted (AVE) value greater than 0.50. These results show that all constructs have met the convergent validity criteria. Thus, all variables in this study were declared valid so that they were suitable for use in further analysis.

Reliability Test

Table 4. Cronbach's Alpha Test Results and Composite Reliability

Variable		Cronbach's Alpha	Composite Reliability	Results
Pressure	X1	0.770	0.865	Reliable
Opportunity	X2	0.633	0.843	Reliable
Rationalization	X3	0.802	0.870	Reliable
Capability	X4	0.903	0.933	Reliable
Arrogance	X5	0.826	0.896	Reliable
Collusion	X6	0.944	0.960	Reliable
Academic Fraud	Y	0.846	0.897	Reliable
Social and Environmental Ethics Awareness	M	0.834	0.880	Reliable

Source : Processed Primary Data (2026)

Based on Table 4, all variables in this study have a Composite Reliability value greater than 0.70. In addition, Cronbach's Alpha values on each variable also indicate a good level of reliability. Thus, all constructs in this study are declared reliable so that they are able to provide consistent measurement results and can be used in structural model testing.

Path Coefficient Test

Table 5. Path Coefficient Test Results (Path Coefficient)

Variable	Original sample (O)	Results
Pressure (X1) → Academic Fraud (Y)	0.202	Positive
Opportunity (X2) → Academic Fraud (Y)	-0.052	Negative
Rationalization (X3) → Academic Fraud (Y)	0.067	Positive
Capability (X4) → Academic Fraud (Y)	0.115	Positive
Arrogance (X5) → Academic Fraud (Y)	0.277	Positive
Collusion (X6) → Academic Fraud (Y)	0.281	Positive
Social and Environmental Ethics Awareness (M) × Pressure (X1) → Academic Fraud (Y)	0.082	Positive
Social and Environmental Ethics Awareness (M) × Opportunity (X2) → Academic Fraud (Y)	-0.082	Positive
Social and Environmental Ethics Awareness (M)× Rationalization (X3) → Academic Fraud (Y)	-0.080	Negative
Social and Environmental Ethics Awareness (M) × Capability (X4) → Academic Fraud (Y)	0.129	Positive
Social and Environmental Ethics Awareness (M) × Arrogance (X5) → Academic Fraud (Y)	0.078	Positive
Social and Environmental Ethics Awareness (M)×	-0.015	Negative

Variable	Original sample (O)	Results
Collusion (X6) → Academic Fraud (Y)		

Source: Processed Primary Data (2026)

Based on Table 5, most of the relationships between variables in the study showed a positive relationship to academic fraud. The positive relationship is shown by the variables of pressure, rationalization, capability, arrogance, and collusion, while the opportunity variable shows the direction of the negative relationship to academic fraud. In the moderation relationship, the interaction of social and environmental ethics awareness with pressure, capability, and arrogance indicates a positive relationship, while the interaction with opportunity, rationalization, and collusion indicates a negative relationship direction. Thus, the path coefficient value indicates the direction of the relationship between the variables being tested, while the significance of the relationship will be further explained through hypothesis testing.

Coefficient of Determination Test (R-Square)

Table 6. Determination Coefficient Test Results (R-Square)

Endogenous Variable	R Square	R Square Adjusted	Prediction Model
Academic Fraud (Y)	0.698	0.683	Moderate Model

Source: Processed Primary Data (2026)

Based on Table 6, an R-Square value of 0.698 and an R-Square Adjusted value of 0.683 were obtained in the academic fraud variable. The results showed that the variables of pressure, opportunity, rationalization, capability, arrogance, collusion, and social and environmental ethics awareness were able to explain the variation in academic fraud by 69.8%, while the remaining 30.2% were explained by other factors outside the research model. Thus, the research model has a relatively strong ability to explain the variety of academic fraud.

Hypothesis Test

Table 7. Hypothesis Test Results

Variable	T-Statistic	P-Value	Remarks
Pressure (X1) → Academic Fraud (Y)	4.032	0.000	Accepted Hypothesis
Opportunity (X2) → Academic Fraud (Y)	1.039	0.299	Hypothesis Rejected
Rationalization (X3) → Academic Fraud (Y)	1.151	0.250	Hypothesis Rejected
Capability (X4) → Academic Fraud (Y)	1.771	0.077	Hypothesis Rejected
Arrogance (X5) → Academic Fraud (Y)	3.988	0.000	Accepted Hypothesis
Collusion (X6) → Academic Fraud (Y)	4.295	0.000	Accepted Hypothesis

Source: Processed Primary Data (2026)

Based on the results of the hypothesis test in Table 7, the following results were obtained.

H1: Pressure has a positive and significant effect on academic fraud. This is shown by a t-statistical value of 4.032 which is greater than 1.96 and a p-value of 0.000 which is smaller than 0.05. Thus, H1 is accepted.

H2: Opportunity has no significant effect on academic fraud. This is shown by a t-value of 1.039 which is smaller than 1.96 and a p-value of 0.299 which is greater than 0.05. Thus, H2 is rejected.

H3: Rationalization has no significant effect on academic fraud. This is shown by a t-value of 1.151 which is smaller than 1.96 and a p-value of 0.250 which is greater than 0.05. Thus, H3 is rejected.

H4: Capability has no significant effect on academic fraud. This is shown by a t-statistical value of 1.771 which is smaller than 1.96 and a p-value of 0.077 which is greater than 0.05. Thus, H4 was rejected.

H5: Arrogance has a positive and significant effect on academic fraud. This is shown by a t-value of 3.988 which is greater than 1.96 and a p-value of 0.000 which is smaller than 0.05. Thus, H5 is accepted

H6: Collusion has a positive and significant effect on academic fraud. This is shown by a t-value of 4.295 which is greater than 1.96 and a p-value of 0.000 which is smaller than 0.05. Thus, H6 is accepted.

Moderation Test

Table 8. Moderation Test Results

Variable	T-Statistic	P-Value	Remarks
Social and Environmental Ethics Awareness (M) × Pressure (X1) → Academic Fraud (Y)	1,337	0,181	Hypothesis Rejected
Social and Environmental Ethics Awareness (M) × Opportunity (X2) → Academic Fraud (Y)	1,536	0,125	Hypothesis Rejected
Social and Environmental Ethics Awareness (M)× Rationalization (X3) → Academic Fraud (Y)	1,226	0,220	Hypothesis Rejected
Social and Environmental Ethics Awareness (M) × Capability (X4) → Academic Fraud (Y)	1,685	0,092	Hypothesis Rejected
Social and Environmental Ethics Awareness (M) × Arrogance (X5) → Academic Fraud (Y)	1,226	0,220	Hypothesis Rejected
Social and Environmental Ethics Awareness (M)×	0,211	0,833	Hypothesis Rejected

Variable	T-Statistic	P-Value	Remarks
Collusion (X6) → Academic Fraud (Y)			

Source: Processed Primary Data (2026)

Based on the results of the moderation test in Table 8, the following results were obtained.

H7: Social and Environmental Ethics Awareness has not been proven to moderate the effect of pressure on academic fraud. This is shown by a t-statistical value of 1.337 which is smaller than 1.96 and a p-value of 0.181 which is greater than 0.05. Thus, H7 was rejected

H8: Social and Environmental Ethics Awareness has not been shown to moderate the influence of opportunity on academic fraud. This is shown by a t-value of 1.536 which is smaller than 1.96 and a p-value of 0.125 which is greater than 0.05. Thus, H8 was rejected.

H9: Social and Environmental Ethics Awareness has not been proven to moderate the effect of rationalization on academic fraud. This is shown by a t-statistical value of 1.226 which is smaller than 1.96 and a p-value of 0.220 which is greater than 0.05. Thus, H9 was rejected

H10: Social and Environmental Ethics Awareness has not been shown to moderate the influence of capability on academic fraud. This is shown by a t-value of 1.685 which is smaller than 1.96 and a p-value of 0.092 which is greater than 0.05. Thus, H10 was rejected.

H11: Social and Environmental Ethics Awareness has not been proven to moderate the influence of arrogance on academic fraud. This is shown by a t-statistical value of 1.226 which is smaller than 1.96 and a p-value of 0.220 which is greater than 0.05. Thus, H11 was rejected.

H12: Social and Environmental Ethics Awareness has not been proven to moderate the influence of collusion on academic fraud. This is shown by a t-value of 0.211 which is smaller than 1.96 and a p-value of 0.833 which is greater than 0.05. Thus, H12 was rejected

Discussion

The Effect of Pressure on Academic Fraud

The results of the study showed that pressure had a positive and significant effect on academic fraud, so H1 was accepted. These findings indicate that the higher the academic pressure experienced by students, the higher the tendency to commit academic fraud. The pressure that comes from the demands of obtaining grades, assignment loads, and difficulties in understanding the material can encourage students to use Artificial Intelligence inappropriately. These findings are in line with the Fraud Hexagon Theory which states that pressure is a driving factor for fraud, and the Theory of Planned Behavior which explains that pressure can affect the tendency of individual behavior in meeting the demands faced.

In students of the UPN "Veteran" East Java Accounting Study Program, academic pressure still has the potential to affect decision-making in the use of Artificial Intelligence, even though students have gained reinforcement about ethics and integrity through the internalization of the values of National Defense as well as Professional Ethics and Accounting Examination courses. These findings are in line with Affandi et al. (2022), Faadhilah & Fauzihardani (2025), and Prastiwi et al. (2025), which show that academic pressure can increase students' tendency to commit academic fraud. On the other hand, research by Rafnhar & Muslimin (2022), Pratiwi & Munari (2024), and Minshy L. Tameno et al. (2025) reported that pressure had no significant effect on academic fraud. These differences indicate that respondent

characteristics, academic environment, and technological developments can affect how academic pressure encourages academic fraud. This condition further strengthens the relevance of Fraud Hexagon Theory in explaining academic fraud behavior in the era of Artificial Intelligence utilization.

The Influence of Opportunity on Academic Fraud

The opportunity to commit academic fraud is not always followed by an increasing tendency to engage in such behavior. This is reflected in the results of the study, which indicate that opportunity does not have a significant effect on academic fraud; therefore, H2 is rejected. Although students have broad access to Artificial Intelligence, the existence of such opportunities does not necessarily lead them to engage in actions that violate academic ethics. These findings suggest that the availability of opportunities alone is insufficient to explain academic fraud. This condition is consistent with the Theory of Planned Behavior, particularly the concept of perceived behavioral control, which suggests that the perception of having an opportunity does not automatically translate into actual behavior. Therefore, opportunities described in the Fraud Hexagon Theory are not always realized in the form of academic fraud.

The insignificant effect of opportunity suggests that access to Artificial Intelligence alone is insufficient to encourage academic fraud. The widespread availability of AI technologies has made access relatively similar among students, reducing the importance of opportunity as a distinguishing factor in academic fraud behavior. Although opportunities to misuse AI are widely available, students do not necessarily utilize these opportunities for unethical purposes. This finding indicates that the existence of opportunity alone is insufficient to explain academic fraud and that individual considerations may play a more important role in determining students' behavior. This result is consistent with Malva et al. (2024), who found that opportunity did not significantly influence academic fraud. However, Triandini et al. (2025) reported contrasting findings, suggesting that opportunity can increase the tendency to engage in academic fraud. These differences imply that the influence of opportunity may vary depending on the characteristics of respondents, institutional policies, and the academic environment.

The Effect of Rationalization on Academic Fraud

The tendency of students to justify a particular behavior is not necessarily followed by academic fraud. The results of this study indicate that rationalization does not have a significant effect on academic fraud; therefore, H3 is rejected. Although the inappropriate use of Artificial Intelligence may be perceived as acceptable by some students, such perceptions have not been proven to increase the tendency to engage in academic fraud. According to Fraud Hexagon Theory, rationalization refers to an individual's tendency to justify unethical behavior. Similarly, the Theory of Planned Behavior, particularly the attitude toward behavior component, suggests that favorable attitudes toward a particular behavior do not necessarily result in actual behavior. Therefore, students' justifications for using Artificial Intelligence inappropriately do not automatically lead to academic fraud.

The insignificant effect of rationalization indicates that students' justifications for using Artificial Intelligence inappropriately are insufficient to explain academic fraud. Although some students may perceive AI-assisted academic work as acceptable, such perceptions are not always translated into unethical academic behavior. This finding suggests that rationalization alone is not a strong predictor of academic fraud in the context of Artificial Intelligence utilization. The results are consistent with Malva et al. (2024) and Theotama et al. (2023), who reported that rationalization did not significantly influence academic fraud. However, Moorcy et al. (2024) found that rationalization significantly contributed to academic fraud. These

inconsistent findings indicate that the influence of rationalization may vary depending on students' characteristics, academic environments, and the context in which Artificial Intelligence is utilized.

The Influence of Capability on Academic Fraud

High capability does not necessarily increase students' tendency to engage in academic fraud. This is reflected in the findings, which indicate that capability does not have a significant effect on academic fraud; therefore, H4 is rejected. Although students possess sufficient knowledge and skills to utilize Artificial Intelligence, these capabilities have not been proven to encourage academic fraud. According to Fraud Hexagon Theory, capability refers to an individual's ability to carry out fraudulent behavior. Similarly, the Theory of Planned Behavior, particularly the perceived behavioral control component, suggests that possessing the ability to perform a behavior does not necessarily lead to the actual performance of that behavior. Therefore, students' capability in utilizing Artificial Intelligence does not automatically result in academic fraud.

The insignificant effect of capability indicates that students' knowledge and skills in using Artificial Intelligence are more likely to be utilized to support learning rather than to facilitate academic misconduct. The widespread integration of AI into higher education enables students to employ their capabilities for academic purposes without necessarily violating academic integrity. This finding suggests that capability serves as a supporting resource rather than a direct determinant of academic fraud. The results are consistent with Malva et al. (2024), who reported that capability did not significantly influence academic fraud. However, Rafnhar & Muslimin (2022) as well as Prastiwi et al. (2025) found that capability significantly increased the tendency to engage in academic fraud. These inconsistent findings indicate that the influence of capability may depend on differences in students' characteristics, academic environments, and patterns of Artificial Intelligence utilization.

The Effect of Arrogance on Academic Fraud

The higher the level of student arrogance, the higher the tendency to commit academic fraud. This is reflected in the results of research that show that arrogance has a positive and significant effect on academic fraud, so H5 is accepted. In Fraud Hexagon Theory, arrogance is seen as a factor that encourages individuals to commit fraudulent acts because of the belief that certain rules and consequences do not apply to them. In addition, the Theory of Planned Behavior, especially the aspect of perceived behavioral control, explains that excessive belief in one's abilities can increase an individual's courage in committing deviant behavior.

Although students of the UPN "Veteran" East Java Accounting Study Program have gained an understanding of honesty, responsibility, and integrity through the internalization of the values of the State Defense as well as the Professional Ethics and Accounting Examination courses, high arrogance can encourage students to ignore these values. These findings support the research results of Minshy L. Tameno et al. (2025) and Prastiwi et al. (2025) who both show that excessive confidence in one's abilities can increase the tendency to commit academic fraud. In contrast to these results, Malva et al. (2024) reported that arrogance is not necessarily manifested in the form of fraudulent behavior. These variations in results indicate that the relationship between arrogance and academic fraud can be influenced by individual perceptions of risk and the characteristics of the academic environment that surrounds it.

The Effect of Collusion on Academic Fraud

Student involvement in cooperation that leads to unethical behavior can increase the tendency to commit academic fraud. This is reflected in the results of research that show that collusion has a positive and significant effect on academic

fraud, so H6 is accepted. In Fraud Hexagon Theory, collusion explains that support and cooperation between individuals can increase the likelihood of fraud. In addition, the Theory of Planned Behavior, especially the subjective norm aspect, explains that the social environment can influence an individual's decision to perform an action.

The influence of the social environment and peers can still influence the decision-making of students of the UPN "Veteran" East Java Accounting Study Program, even though the internalization of the values of the State Defense and learning through the Professional Ethics and Accounting Examination courses have instilled the importance of honesty, responsibility, and academic integrity. These findings are in line with Affandi et al. (2022), Prastiwi et al. (2025), and Minshy L. Tameno et al. (2025) who show that collusion has a positive effect on academic fraud. In contrast, Moorcy et al. (2024) found that collusion had no significant effect on academic fraud. These differences indicate that the influence of the social environment, academic culture, and interactions between individuals can affect the relationship between collusion and academic fraud.

The Role of Social and Environmental Ethics Awareness in Moderating the Influence of Pressure on Academic Fraud

The effect of pressure on academic fraud that has been proven to be significant did not change when Social and Environmental Ethics Awareness was included as a moderation variable, so H7 was rejected. These results show that academic pressure is still more dominant than ethical awareness in influencing students' tendency to commit academic fraud. As a result, ethical considerations possessed by students are not necessarily able to reduce the influence of pressure on academic fraud.

For students of the UPN "Veteran" Accounting Study Program in East Java, the internalization of the values of Defending the State and learning through the Professional Ethics and Accounting Examination courses have not been able to completely change the influence of pressure on academic fraud. These findings are in line with Rangkuti et al. (2022) who show that the influence of ethical awareness on behaviors related to academic cheating is not always consistent. However, different results were shown by Kong & Zhu (2025) who found that Artificial Intelligence Ethical Awareness plays a role in shaping students' responsible attitudes towards the use of Artificial Intelligence. These differences are allegedly related to the characteristics of respondents, the level of internalization of academic ethics, and the context of the use of Artificial Intelligence in the academic environment.

The Role of Social and Environmental Ethics Awareness in Moderating the Influence of Opportunity on Academic Fraud

The difference in the level of Social and Environmental Ethics Awareness that students have does not produce a different response to the existence of opportunities to commit academic fraud. This shows that Social and Environmental Ethics Awareness is not able to moderate the relationship between opportunity and academic fraud, so H8 is rejected. The findings are in line with the results of the H2 test which shows that opportunity also has no effect on academic fraud. Thus, the existence of opportunities to commit fraud is not necessarily perceived as a reason that encourages students to commit academic fraud, so that the difference in the level of ethical awareness they have does not result in meaningful changes to the relationship.

Research by Rangkuti et al. (2022) also found that the influence of ethical awareness on behaviors related to academic cheating did not always show consistent results. Meanwhile, Kong & Zhu, (2025) reported that Artificial Intelligence Ethical Awareness is able to shape students' attitude of responsibility in the use of Artificial Intelligence. The difference in findings suggests that the role of ethical awareness can vary according to the characteristics of respondents and the context of the research

used. The understanding of honesty, responsibility, and academic integrity instilled through the internalization of the values of National Defense and learning in the Professional Ethics and Accounting Examination courses has not been followed by different responses to opportunities in students of the UPN "Veteran" East Java Accounting Study Program who have different levels of Social and Environmental Ethics Awareness.

The Role of Social and Environmental Ethics Awareness in Moderating the Influence of Rationalization on Academic Fraud

Rationalization in the use of Artificial Intelligence does not show a different relationship with the tendency to commit academic fraud in students who have different levels of Social and Environmental Ethics Awareness. This condition shows that Social and Environmental Ethics Awareness is not able to moderate the influence of rationalization on academic fraud, so H9 is rejected. In line with the results of the H3 test, the rationalization possessed by students is not necessarily manifested in the form of academic fraud, so that differences in the level of ethical awareness do not result in meaningful changes to the relationship.

The characteristics of students of the UPN "Veteran" East Java Accounting Study Program who obtained the strengthening of ethical values, integrity, and academic responsibility through the internalization of the values of National Defense and learning in the Professional Ethics and Accounting Examination courses are suspected to have contributed to the insignificance of the relationship between rationalization and academic fraud. The focus of the study of Kong & Zhu (2025) is more directed towards the formation of students' responsible attitudes towards the use of Artificial Intelligence, while this study emphasizes the relationship between rationalization and academic fraud. These differences in focus allow for different results. Meanwhile, the results obtained still show a trend similar to the findings (Rangkuti et al., 2022).

The Role of Social and Environmental Ethics Awareness in Moderating the Influence of Capability on Academic Fraud

The ability of students to use Artificial Intelligence does not show different tendencies of academic fraud at different levels of Social and Environmental Ethics Awareness. This condition shows that Social and Environmental Ethics Awareness is not able to moderate the influence of capability on academic fraud, so H10 is rejected. In line with the results of the H4 test, the capabilities possessed by students are not necessarily directed to behaviors that are contrary to academic ethics, so differences in the level of ethical awareness do not result in meaningful changes to the relationship.

Easy access to Artificial Intelligence allows students to use their abilities to support the learning process. This condition is suspected to have contributed to the insignificance of the relationship between capability and academic fraud in students of the UPN "Veteran" East Java Accounting Study Program who obtained the strengthening of ethical values and integrity through the internalization of the values of the State Defense as well as the Professional Ethics and Accounting Examination courses. The focus of the study Kong & Zhu (2025) is more directed at the formation of student responsibility attitudes in the use of Artificial Intelligence, while this study places capability in relation to academic fraud. Meanwhile, the pattern of findings obtained still shows a similar trend to the results of the study (Rangkuti et al., (2022).

The Role of Social and Environmental Ethics Awareness in Moderating the Influence of Arrogance on Academic Fraud

The tendency of academic fraud influenced by arrogance does not show a difference in students with different levels of Social and Environmental Ethics Awareness. This condition shows that Social and Environmental Ethics Awareness is

not able to moderate the influence of arrogance on academic fraud, so H11 was rejected. In line with the results of the H5 test, arrogance still has an effect on academic fraud. Thus, the difference in the level of ethical awareness that students have does not result in meaningful changes to the relationship.

The influence of arrogance that remains significant shows that excessive confidence in one's abilities is still related to the tendency to commit academic fraud. For students of the UPN "Veteran" East Java Accounting Study Program, this condition occurs even though the strengthening of ethical values and integrity has been obtained through the internalization of the values of State Defense as well as Professional Ethics and Accounting Examination courses. The results of Rangkuti et al. (2022) research show that the influence of ethical awareness on behavior related to academic cheating is not always consistent. Meanwhile, Kong & Zhu (2025) show that ethical awareness in the use of Artificial Intelligence can contribute to the formation of student responsibility attitudes. These differences indicate that the effectiveness of ethical awareness can differ depending on the characteristics of factors that influence individual behavior.

The Role of Social and Environmental Ethics Awareness in Moderating the Influence of Collusion on Academic Fraud

The influence of collusion on academic fraud does not differ among students with different levels of Social and Environmental Ethics Awareness. This finding indicates that Social and Environmental Ethics Awareness is not able to moderate the relationship between collusion and academic fraud; therefore, H12 is rejected. In line with the results of the H6 test, collusion remains a significant predictor of academic fraud. Thus, differences in students' levels of ethical awareness do not significantly alter the influence of collusion on academic fraud.

The significant influence of collusion indicates that cooperation among students continues to encourage academic fraud despite differences in their levels of Social and Environmental Ethics Awareness. This finding suggests that ethical awareness alone may be insufficient to reduce the influence of peer collaboration that facilitates unethical academic behavior. Although Kong and Zhu (2025) reported that Artificial Intelligence Ethical Awareness contributes to developing students' sense of responsibility in the use of Artificial Intelligence, the findings of this study indicate that such awareness does not necessarily weaken the influence of collusion on academic fraud. Similarly, Rangkuti et al. (2022) found that the influence of ethical awareness on behaviors related to academic dishonesty was not always consistent. These findings imply that the effectiveness of ethical awareness in reducing academic fraud may depend on the characteristics of the social environment, peer influence, and the context in which Artificial Intelligence is utilized.

Overall, the findings extend the application of Fraud Hexagon Theory in explaining academic fraud within the context of Artificial Intelligence utilization in higher education. The results demonstrate that not all Fraud Hexagon dimensions contribute equally to academic fraud, as only pressure, arrogance, and collusion significantly influenced academic fraud, whereas opportunity, rationalization, and capability did not. Furthermore, Social and Environmental Ethics Awareness was not found to moderate the relationships between Fraud Hexagon dimensions and academic fraud. These findings suggest that ethical awareness alone may be insufficient to weaken or strengthen the influence of Fraud Hexagon factors on academic fraud, indicating that the explanatory power of Fraud Hexagon Theory and the effectiveness of ethical awareness may vary depending on the technological and educational context. From a practical perspective, universities should prioritize strategies to reduce academic pressure, prevent collusive behavior, and strengthen students' academic integrity. In addition, higher education institutions should

establish clearer policies and guidelines regarding the ethical use of Artificial Intelligence while integrating ethics education with practical supervision mechanisms to minimize academic fraud.

Conclusion and Recommendations

This study shows that academic fraud in the use of Artificial Intelligence in students of the UPN "Veteran" East Java Accounting Study Program is more influenced by pressure, arrogance, and collusion, while opportunity, rationalization, and capability have not been proven to contribute to academic fraud. In addition, Social and Environmental Ethics Awareness has not been shown to moderate the relationship between Fraud Hexagon Factors and academic fraud. These results show that students' tendency to commit academic fraud is still more influenced by academic pressure, individual characteristics, and social environment than the difference in the level of Social and Environmental Ethics Awareness. These findings show that the existence of Artificial Intelligence is not necessarily the cause of academic fraud, but depends on the factors behind student behavior in utilizing the technology. Thus, this study expands the application of Fraud Hexagon Theory in explaining academic fraud in the context of the use of Artificial Intelligence in the higher education environment.

In line with the findings obtained, the UPN "Veteran" East Java Accounting Study Program is expected to strengthen efforts to prevent academic fraud by focusing attention on factors that have been proven to be influential, namely pressure, arrogance, and collusion. Strengthening academic integrity through National Defense education, Professional Ethics courses, and Accounting Examinations as well as the preparation of clearer guidelines for the use of Artificial Intelligence can be steps to encourage the responsible use of technology. The next study is suggested to expand the scope of respondents and consider other variables, such as academic integrity, self-control, moral disengagement, religiosity, and digital literacy, so as to obtain a more comprehensive understanding of the factors that affect academic fraud in the use of Artificial Intelligence.

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